CHOOSE YOUR OWN ADVENTURE: INTERACTIVE NARRATIVES AND ATTITUDE CHANGE

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ABSTRACT

Keenan M. Jenkins: Choose Your Own Adventure: Interactive Narratives and Attitude Change
(Under the direction of Melanie Green)

Most existing research on narratives and attitude change focuses on how traditional narratives can be used as persuasion tools (Green & Brock, 2000). However, *interactive narratives* – narratives in which the reader decides the direction of the plot – have garnered little empirical attention. In Study 1, participants read a traditional narrative, an interactive narrative, or no narrative (control). The effect of interactive narratives on attitude change was mediated by readers' feelings of responsibility for the character's decisions. Additionally, when readers made decisions based on what they would actually do, identification was increased. In Study 2, readers' decision-making methods were manipulated. Though there were no direct effects of decision-making methods on attitude change, some results from Study 1 were replicated (i.e., responsibility and identification as key factors). Individual differences were also measured; results suggested that high need for cognition and high transportability predicts attitude change for interactive narrative readers.

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INTRODUCTION

You surface, trying to do the awesome head toss you'd seen on so many TV shows, and failing. A lap or two around the pool would be nice, but there are too many bodies in the way. You float about a bit, getting splashed and splashing in return, until you feel the need for the sun again – and, to be honest, more drink – and leave the pool. As you towel off, you walk toward one of the many coolers. The contents are plentiful and varied. Beer, of course. Soft drinks. Sparkling water. You make your decision and reach into the crushed ice, pulling out…

Turn to page 38 to pull out a beer; turn to page 39 to pull out a soda…

- *The Brewsters*, by Jeffrey P. Spike, Thomas R. Cole, and Richard Buday

In most stories, the reader has no control over the actions of the characters. Usually, stories have a clearly demarcated beginning, middle, ending; the author has already determined the direction of the plot before the reader ever lays eyes on the narrative. However, *interactive narratives* are different. Interactive narratives, also known as "choose your own adventure" stories, allow the readers to take the driver's seat and decide the direction of the story's plot. For example, *The Brewsters* (Spike, Cole, & Buday, 2011; excerpt above) is an interactive novel in which the reader takes the role of a medical student who navigates ethical dilemmas (e.g., whether to pose for an unprofessional photo or whether to accept a gift from a pharmaceutical representative).

The current thesis focuses on these unique narratives – in particular, I will examine the potential for interactive narratives to lead to attitudinal change. There is a gap in the literature on this topic (see Green & Jenkins, 2014, for a review); the current research aims to begin filling that hole with the current research.

What is an Interactive Narrative?

In an interactive narrative, the reader first encounters some introductory material, and then reaches a decision point. At this decision point, the story then branches off in one of two (or more) directions based on the consequences of the reader's decision. In many narratives, a branching scene then brings the narrative back to the main story (Hand & Varan, 2007, 2008; see Figure 1 for an example). Some interactive narratives ask readers to make decisions every few paragraphs or pages; even in narratives with a relatively high frequency of decision points, there is generally substantial narrative content between each choice. In some interactive narratives, such as *The Brewsters*, readers may make a few "practice" decisions about minor issues (e.g., which beverage to choose) before making more critical decisions (e.g., accepting or rejecting a gift from a pharmaceutical representative).

Interactive narratives stand in contrast to "traditional" narratives, in which the writer controls the direction and events of the story. Traditional narratives typically move from beginning to middle to end, without exploring alternative paths or endings. Although interactive narratives can be conveyed in different media (text, audio, video, live performance), the current research focuses on text-based narratives.

Interactive narratives are not new; a web search for "interactive fiction" or "gamebook" reveals a variety of interactive narratives, most created for purely entertainment purposes. These narratives have been written for a wide range of audiences and age groups, from children (e.g., the original Choose Your Own Adventure books; the *Give Yourself Goosebumps* series by R. L. Stine in the late 1990's) to adults training to become medical professionals (e.g., *The Brewsters*). For example, in *The Brewsters*, the outcomes of the reader's decisions illustrate the consequences of actions that violate professional and medical ethics. Currently, interactive

narratives are not as widely used as other forms of persuasion. However, given the rapid advances in technology (e.g., iPads, Kindles) that allow for a variety of forms of storytelling, research on these narratives is timely.

Interactive narratives can serve as a form of both narrative persuasion and entertainment-education. Singhal and Rogers (1999) defined entertainment-education as "the process of purposely designing and implementing a media message both to entertain and educate, in order to increase audience members' knowledge about an educational issue, create favorable attitudes, and change overt behavior" (p. 9). Entertainment education has been effective in changing attitudes and behavior across a range of social and health topics, including literacy, family planning, and cancer (see Singhal, Cody, Rogers & Sabido, 2004 for a review; Wilkin, Valente, Murphy, Cody, Huang, & Beck, 2007 as an example). Entertainment-education effects have been widely demonstrated even though these narratives are clearly fictional (e.g., telenovelas; Slater, 2002). Interactive narratives should be a useful addition to the entertainment-education toolbox. The fact that interactive narratives are enjoyable to read or play makes individuals more willing to receive the information and more likely to continue engaging with the narrative (e.g., Moyer-Guse & Nabi, 2010). Singhal (2004) highlights interactive theatre as an especially useful form of interactive media. Interactive theater, in which audience members engage with the characters during a performance, has been used as an educational tool, particularly to educate people about HIV/AIDS prevention. Similarly, research has suggested that interactive narrative games can produce desired changes in health behaviors (Baranowski, Buday, Thompson, & Baranowski, 2008).

Narrative Engagement and Persuasion in Interactive Narratives

There is substantial empirical precedent for using narratives as tools for persuasion (see Green & Brock, 2002; van Laer, Ruyter, Visconti, & Wetzels, 2014). Interactive narratives provide fertile ground for gaining a greater understanding of narrative processing; how do individuals respond psychologically to narratives that provide an opportunity for active participation? Here, the existing research on narrative engagement and persuasion is outlined with a focus on why interactive narratives should spur stronger attitude change than traditional narratives. Specifically, I focus on transportation, identification, and responsibility.

Transportation into Narratives

Most people have had the experience of being so engaged in a story that the real world seems to disappear while they peruse the pages. Often, a reader will feel as if the characters are real and the situations in the story are actually occurring. This experience is called *transportation into a narrative world*. Transportation into narratives is broadly defined as cognitive and emotional, immersion in a story, accompanied by vivid mental imagery (Gerrig, 1993; Green & Brock, 2000, 2002). Researchers have used a variety of terms to describe these kinds of immersive states, including narrative engagement (e.g., Busselle & Bilandzic, 2008) and involvement (see Klimmt & Vorderer, 2003).

Transportation into narratives has been shown to be a mechanism of narrative persuasion (e.g., Appel & Richter, 2010; Escalas, 2004; Green & Brock, 2000; Murphy, Frank, Moran, & Patnoe-Woodley, 2011); people who are transported into a story are likely to change their real-world beliefs in response to information, claims, or events in a story (Green, 2006). Green, Brock, & Kaufman (2004) suggest that transportation is an enjoyable and desirable experience;

research by Escalas (2004) showed that this positive affect partially mediates the effect of transportation on subsequent attitudes toward an advertisement and evaluation of a brand. Green and colleagues (2004) have suggested that interactivity should facilitate transportation, leading to an immersive and enjoyable narrative experience. While traditional narratives involve passive engagement, interactive narratives require active engagement. In an interactive narrative, a reader "enacts rather than witnesses the story, and in this way the audience more deeply [internalizes] and personalizes the story events…the consequences of those events are felt more deeply" (Hand & Varan, 2008, p. 13; see also Murray, 1997). Although there have been few empirical tests of this hypothesis, Hand and Varan (2008) found that interactive television programs were more immersive and entertaining than traditional programs, and that the interactive versions were not more difficult to comprehend than their traditional counterparts. Vorderer, Knobloch, and Schramm (2001) altered the level of interactivity in a movie; those in the high interactivity condition were able to intervene in the story three times, compared to one time for the low interactivity condition and zero times for the no interactivity condition. The results suggested that people with higher cognitive capacity found an interactive movie more entertaining, more suspenseful, and rated it as more positive than a traditional movie. Those with higher cognitive capacity also reported higher levels of empathy for the protagonist in interactive narratives.

Transportation leads to attitude, belief, or behavior change through several processes, including evoking vivid mental imagery and reducing counterarguing (Green & Brock, 2000, 2002). Transportation has also been shown to be associated with perceived realism, or believing that the events of the story could occur in real life (Green, 2004). Adding interactivity to a story should not adversely affect any of these processes. Being confronted with the idea of multiple

pathways in an interactive narrative may even provide additional imagery to the reader. While interactive narrative readers do have to evaluate the plot options at decision points, they will likely be in an immersive mindset and will be unlikely to evaluate or criticize story claims and implications. While it is possible that adding interactivity to a narrative could decrease immersion, this is doubtful; though readers are momentarily lifted from narrative to make a decision, this process still involves thinking deeply about the events of the story and evaluating the possible plot options. Engagement is unlikely to falter at these points.

Identification

Identification with characters is the process of "merging with the character and sharing the character's knowledge about the narrated events, adopting the character's goals…and sharing the character's emotions" (Tal-Or & Cohen, 2010, p. 404). To identify with a character is to figuratively step into that character's shoes and feel empathy for the character. During identification, readers "make this leap into another mind" (Oatley, 2002, p. 62) and adopt the character's point of view.

Identification is similar to transportation, but while the two processes can occur simultaneously, they are conceptually different. Transportation refers to immersion in the narrative world as a whole, whereas identification is specific to characters in the narrative. Slater and Rouner (2002) suggest that identification with characters plays an important part in narrative persuasion. Identification can predict story-consistent attitudes (Cho, Shen, & Wilson, 2012) and even behaviors (Dal Cin, Gibson, Zanna, Shumate, & Fong, 2007; Larkey & Hecht, 2010). The nature of interactive narratives makes them more conducive to identification than a traditional narrative. Interactive narratives allow and encourage readers to actively take on the goals of the character. Adopting character goals is an important element of identification from a

theoretical perspective, and it can be especially important for health persuasion, where stories often involve characters with goals for healthy behavior. Identification with a character temporarily broadens the reader's perspective; the reader can understand events in a different light and this, too, is a possible path toward attitude change (Cohen, 2001).

Identification and decision-making methods. The ability to control and interactive narrative opens up multiple paths to identification. These paths are manifested in the way that readers make decisions during the story. Though there may be other possibilities, there are three primary ways that the reader may make decisions for the protagonist. First, the reader might project him or herself into the story, and make a decision based on what he or she would do in that situation. Alternatively, the reader may attempt to understand the character as presented in the story and make the decision based on what that character would do (i.e., take on the presumed traits and motivations of the character). For example, if a character has been established as risk-seeking, a reader might choose risky options to be consistent with his or her idea of the character's preferences. Finally, readers might also treat the story as a game, and simply choose the option that seems most exciting or seems like it would make the best story.

These first two decision-making strategies would indicate high levels of identification. Inserting oneself into the story or adopting the protagonist's goals are in line with definitions of identification. These methods encourage engagement with the story, and are likely to lead to attitude change (Cho, Shen, & Wilson, 2012). However, the latter option would indicate low levels of identification. Although individuals who engage with a story this way may be entertained by the experience, they are not forming a connection with the character or putting themselves in the place of the character. Rather, such readers are focusing primarily on the plot.

Responsibility for the Story Outcomes

Though readers often feel empathy for a character in traditional narratives, they do not often feel responsibility for the character's actions and subsequent consequences. However, in interactive narratives, readers choose the character's actions; thus, readers are likely to feel a sense of responsibility for the consequences and outcomes in the story due to the enhanced user control. These increased feelings of agency in an interactive narrative could lead to more enjoyment (Roth, Vermeulen, Klimmt, & Vorderer, 2012). Indeed, Klimmt, Hartmann, and Frey (2007) found that higher perceived influence predicted increased enjoyment of an interactive game. However, increased responsibility for negative outcomes could also threaten the reader's self-concept (Markman & Tetlock, 2000).

Additional research in the health domain suggests that internal attributions of responsibility can lead to attitudinal and behavioral change (Harackiewicz, Sansone, Blair, Epstein, & Manderlink, 1987; Rothman, Salovey, Turvey, & Fishkin, 1993; but also see Sogin & Pallak, 1976; Kelley, 1967). Rothman and colleagues (1993) altered a persuasive message about breast cancer and mammography to incite either internal or external responsibility. Women in the internal responsibility condition were more likely to feel personally responsible for their self-care, as well as more likely to obtain a mammogram than those in the external responsibility condition. Similarly, in a study about smoking cessation, Harackiewicz and colleagues (1987) found that those who took personal responsibility (internal attributions) for quitting were more successful at abstaining from cigarette use in the long-term.

Counterfactuals

In addition to the engagement processes described above, interactive narratives may be more likely to evoke counterfactual thinking than traditional narratives. Counterfactuals are

imagined alternatives to reality, or a mental simulation of "what could have happened" (Kahneman & Miller, 1986; Kahneman & Tversky, 1982). Being able to make decisions in an interactive narrative may make it easier for participants to imagine counterfactuals (Markman, Gavanski, Sherman, & McMullen, 1995). Counterfactual thinking can amplify the emotional response to an event (Kahneman & Miller, 1986). Furthermore, Tal-Or, Boninger, Poran, and Gleicher (2004) found that counterfactuals increase narrative persuasion, particularly if the blame lies with the self. Although traditional narratives can evoke counterfactuals, interactive narratives do so almost by definition: at each decision point, readers can imagine a "road not taken." If interactive narratives do indeed lead to increased feelings of responsibility for story outcomes, then the presence of these counterfactuals may lead to attitudinal and behavioral change. This could be especially effective when a reader chooses an option that leads to negative consequences for the character; counterfactual thinking is more common with negative outcomes (Roese & Hur, 1997). While there is a potential for readers to have their self-concept threatened, interactive narratives should provide a safe space for readers to either imagine or feel responsibility for negative outcomes and explore counterfactuals. Though investigating counterfactuals is beyond the scope of the current studies, further research should consider their importance in interactive narratives.

Individual Differences and Interactive Narratives

An individual's traits may be important when examining the impact of interactive narratives on attitude change. Individuals may vary in how much they enjoy thoughtful activities (need for cognition) and how easily they become immersed into stories (transportability). These individual difference measures are briefly discussed below.

Need for Cognition

Need for cognition is the extent to which individuals enjoy engaging in effortful cognitive activity (Cacioppo, Petty, & Kao, 1986). Need for cognition has not been shown to directly predict narrative persuasion. However, high need for cognition people are more likely to become transported into text; in contrast, low need for cognition people are more likely to become transported into movies (Green et al., 2008). This effect of medium appears to be driven by the level of mental effort required; texts are perceived as more effortful than films. Ostensibly, interactive narratives require more mental effort than traditional narratives; thus, it follows that interactive narratives should be more enjoyable for people high in need for cognition.

There has been some evidence that need for cognition can impact how people perceive interactive media. Vorderer and colleagues (2001) showed that people with higher cognitive capacity, compared to people with lower cognitive capacity, rated an interactive movie as more entertaining and more positive than a traditional movie, as well as reported higher levels of empathy for the protagonist. Viewers with lower cognitive capacity likely found the interactive framework distracting and displeasing.

Transportability

Transportability refers to individuals' general tendencies to become transported into stories (Dal Cin, Zanna, & Fong, 2004; Mazzocco, Green, Sasota, & Jones, 2010). Individuals who are more transportable are more likely to become transported into any particular story, and are therefore more likely to be persuaded by narratives. The effect of transportability on responses to interactive narratives remains to be studied empirically. Theoretically, we expect that this individual difference will work the same way as with traditional narratives, such that

individuals who are more transportable will be more engaged and influenced by interactive narratives than their less-transportable peers. Furthermore, higher transportability may mean that individuals are less affected by the potential interruptions to the narrative structure caused by the decision points in an interactive narrative, because they are more easily engaged in narratives.

Overview

Interactive narratives should evoke all of the aforementioned processes. Being able to participate in the narrative should make readers more immersed into the story. Making decisions for a character should encourage identification. Having a hand in the actions and outcomes of the story should make participants feel a sense of responsibility for the events of the narrative. I suggest that these processes differ between interactive narratives and traditional narratives, such that they are stronger in the former, and that interactive narratives will be more effective tools for attitude change. The current research will provide empirical evidence to examine these claims.

Over two studies, I examine the effect of interactive narratives on narrative engagement and attitude change. In Study 1, interactive narratives are compared to traditional narratives; Study 2 examines some of the unique processes that occur while reading an interactive narrative (i.e., decision-making processes) to further understand their effectiveness.

STUDY 1

Study 1 examined the effect of interactive narratives, compared to traditional narratives, on subsequent attitudes. I predicted that interactive narratives would facilitate higher engagement (e.g., transportation, identification, feelings of responsibility for the story outcome). Further, I predicted that transportation, identification, and responsibility would independently mediate the effect of interactive narratives on attitudes, such that participants in the interactive narrative condition will report higher levels of the engagement variables, leading to more story-consistent attitudes.

Participants

Participants were 193 undergraduates (98 female, 95 male; 128 White; M_{age} = 18.75, *SD* = 1.26) enrolled in an introductory psychology course. All participants were given course credit in exchange for their participation.

Procedure and Design

Participants entered the lab in groups of up to 7 to complete the experiment. After giving informed consent, the rest of the study was conducted entirely using Qualtrics survey software. Study 1 employed a between-subjects design, in which people were randomly assigned to read a traditional narrative, an interactive narrative, or assigned to a no-narrative control group.

Participants in the narrative conditions read an excerpt adapted from the interactive narrative *The Brewsters*. In the excerpt, the protagonist (John, a third-year medical student) reaches a number of decision points; for example, he has to make choices about drinking alcohol, online publication of unprofessional photos, and accepting gifts from pharmaceutical companies

(i.e., medical ethics). Those who read the interactive narrative were able to make these decisions for the character (e.g., they decided whether or not John accepted a gift from a pharmaceutical representative). For those reading the traditional narrative, each decision was randomly selected; these readers were not aware that there were other plot options. While the different decisions briefly lead to different actions and consequences within the narrative, all decisions (except for the final decision) lead back to the same plot line (i.e., whether John took a beer or a soda, he still ends up getting asked to join a group photo later). Participants were only able to go through the narrative once; they could not go back to explore other plot options.

Additionally, no matter which decision the character (or reader) makes, the reader still witnesses the consequences of the action. For example, if the reader in the interactive conditions chooses to have John take a gift from a pharmaceutical representative, John unwisely prescribes a drug from the pharmacy company to a patient, even though that drug is twice as expensive as the generic brand; his supervisor then questions John's medical ethics. However, when John does not take the gift, he sees his friend go through a similar situation. In another dilemma, John encounters a situation in which he is invited to join his friends in a "drunk and lecherous" photo. If John does join the photo, it ends up being posted online and he faces disciplinary action for being a poor reflection of his school. If John chooses not to join, his friend compliments his decision and tells him a story about how unprofessional photos often end up becoming public. Thus, the consequences of the action are always evident.

After reading the narrative and completing the measures in the order listed below, participants were debriefed and released[1]. Appendix A contains the interactive narrative; Appendix B contains all measures.

Measures

Behavioral intention items – pharmaceutical. Four items assessed participants' attitudes toward behaviors relating the issue of accepting gifts from pharmaceutical representatives. One of the items assessed temptation ("If you were a medical student or a doctor, how *tempted* would you be to accept free items from pharmaceutical companies?"). One of the items assessed attitudinal reactions ("*It's not a big deal for medical students/professionals to accept free gifts from pharmaceutical representatives.*"). Two items assessed likelihood ("*If you were a medical student or a doctor, how likely would you be to accept reduced/free items from pharmaceutical companies?*" and "*Imagine that you have a friend who is a medical student, and your friend was about to accept a gift from a pharmaceutical representative. Would you encourage or discourage your friend from doing so?*"). The two likelihood items were significantly correlated ($r = .67$, $p < .001$) and were averaged to make a single likelihood measure.

Behavioral intention items – photo. Eleven items assessed participants' attitudes toward behaviors relating to photo issues. Two highly correlated items ($r = .69$, $p < .001$) assessed likelihood (e.g., "How likely would you be to post pictures of your friends online in which your friends have an alcoholic drink in their hands?"). Seven items (Cronbach's $\alpha = .92$) assessed attitudinal reactions to photo issues ("big deal" subscale; e.g., "What would your reaction be if

[1] Participants were also asked to type the thoughts they recalled having while reading the narrative. No analyses were done for these thought listings.

your friend posted pictures of you online in which you had an alcoholic drink in your hand?"). Two highly correlated items ($r = .78$, $p < .001$) assessed attitudes toward how photos can affect careers (e.g., "My professional career would not be affected if my friends posted pictures of me online which I have drinks in my hand.").

Attitudes. To assess attitudes toward both accepting pharmaceutical gifts and unprofessional photos, 7 identical semantic differential items were used for each issue. Using a scale from 1 to 7, participants were asked to "Please rate your judgments toward *doctors accepting gifts from pharmaceutical companies* [*allowing pictures of yourself appearing intoxicated to be published online*]" on dimensions such as *foolish – wise, immoral – moral,* or *unintelligent – intelligent.* Items were recoded when necessary so that higher scores indicate more disapproving attitudes (Cronbach's $\alpha_{pharmaceutical} = .91$; Cronbach's $\alpha_{photos} = .84$).

Character evaluations. Participants reported their evaluations of the protagonist using 8 semantic differential items (e.g., *unintelligent – intelligent, indecisive – decisive*) on a scale from 1-7; higher ratings indicated a more positive evaluation (Cronbach's $\alpha = .84$).

Transportation. Narrative transportation was measured using Green & Brock's (2000) 12-item Narrative Transportation Scale (with 3 additional items to further assess imagery). Participants reported their immersion into the story on a scale from 1 (*not at all*) to 7 (*very much*) with items such as "While I was reading the narrative, I could easily picture the events in it taking place" (Cronbach's $\alpha = .82$).

Identification. Identification with characters was measured with Cohen's (2001) 9-item Identification Scale. Response options ranged from 1 (*not at all)* to 7 (*very much*) with items such as "While reading, I felt I could really get inside John's head" (Cronbach's $\alpha = .90$).

Perceived realism. Participants also completed a 7-item subset of the Perceived Realism Scale (Elliott, Rudd, & Good, 1983). These items assessed how real and believable the story seemed to the participants (e.g. "Events that actually have happened or could happen are discussed in this narrative."*).* Each item was scored on a scale from 1 (*not at all)* to 7 (*very much*) (Cronbach's $\alpha = .63$).

Responsibility. Participants in the narrative conditions were asked to report how responsible they felt for the protagonist's decisions on a scale from 1 (*not at all responsible*) to 7 (*completely responsible*).

***Story satisfaction*.** Participants answered two questions to assess story satisfaction: "How much did you like or dislike the story?" and "How good or bad was the story?" Across the full sample, responses to these questions were strongly correlated ($r = .74$, $p < .001$), so these two items were averaged to form a single story satisfaction measure, with higher values indicating a more positive story evaluation (response options ranged from 1 to 7).

Decision-making methods. Three items assessed the way in which people who read the interactive narrative made their decisions. Using scales ranging from 1 (*not at all*) to 7 (*very much*), participants were asked to what extent they made decisions in the story based on: 1) what they thought the character would do; 2) what they would do themselves; and 3) what would make the most interesting story.

Need for cognition. Participants completed the 18-item Need for Cognition Scale (Cacioppo & Petty, 1982; Cacioppo et al., 1986) which assessed how much participants enjoy the thinking on a scale from 1 (*extremely unlike me*) to 5 (*extremely like me*). An example item is, "I really enjoy a task that involves coming up with new solutions to problems." (Cronbach's $\alpha = .88$).

Transportability. Participants completed a 4-item Transportability Scale, an individual measure that assesses one's likelihood of being transported into a narrative. Response options ranged from 1 (*not at all*) to 7 (*very much*) with items such as, "I can become so absorbed in a story that I forget the world around me." (Cronbach's $\alpha = .84$).

Results

Tables 1-3 contain means, standard deviations, and 95% confidence intervals for dependent variables (Table 1), decision-making methods (Table 2), and individual differences (Table 3). Bivariate correlations between all measures can be found in Tables 4.1 and 4.2.

Main Effects for Pharmacy and Photo Attitudes

Contrary to expectations, there was no evidence for a main effect of condition on pharmacy attitudes, F (2, 188) = 1.34, p = .26. Similarly, there was no evidence for a main effect of condition on attitudes toward unprofessional photos, F (2, 187) = 0.16, p = .85. The effect of narrative condition on photo attitudes was significantly moderated by gender, such that females in the interactive condition showed more disapproval toward unprofessional photos than males, b = -0.30, SE = 0.14, p = .04 (see Figure 2); however, the simple slopes for each condition were not significant.

Main Effects for Behavioral Intention Items – Pharmaceutical

There was a main effect of condition on how tempted participants would be to engage in unethical pharmaceutical behaviors, F (2, 177) = 4.10, p = .02. Post-hoc comparisons using the Tukey's HSD test indicated that those who read the interactive narrative reported more story-consistent temptation ratings (i.e., less tempted to take pharmaceutical gifts) than those who read the traditional narrative. Similarly, there was evidence for a main effect of condition on how

likely participants would be to engage in unethical pharmaceutical behaviors, F (2, 183) = 3.45, p = .03. Again, post-hoc comparisons using the Tukey's HSD test indicated that those who read the interactive narrative reported that they would be less likely to accept pharmaceutical gifts than those who read the traditional narrative, while the control group did not differ significantly from either narrative condition.

In the interactive narrative condition, participants' likelihood ratings were significantly correlated with ratings of responsibility (r = .31, p = .02), such that those who reported higher levels of responsibility for the character's decisions in the story also reported more being less likely to accept pharmaceutical gifts. Similarly, in the interactive condition, participants' likelihood ratings were significantly positively correlated with perceived realism (i.e., higher perceived realism was associated with being less likely to accept pharmaceutical gifts; r = .36, p = .004). These correlations were not significant in the traditional narrative condition.

Main Effects for Behavioral Intention Items – Photos

For each of three photo subscales, there was no evidence for a main effect of condition on participants' ratings of taking unprofessional photos, Fs < 1.21, ps > .05. In the interactive condition, ratings of responsibility were significantly correlated with the "big deal" subscale, such that those who felt more responsible for the character's decisions in the story reported negative evaluations of taking unprofessional photos, r = 26, p = .04. Similarly, in the traditional narrative condition, ratings of responsibility were significantly correlated with the "likelihood" subscale, such that those who felt more responsible for the character's decisions in the story reported being less likely to take unprofessional photos, r = .27, p = .046.

Narrative Engagement

Participants did not differ significantly in reported levels of transportation, perceived realism, or story satisfaction across narrative conditions, *F*s < 1, *p*s > .05. However, participants did report higher identification in the interactive condition than in the traditional condition, F (1, 128) = 4.16, p = .04.[2]

Contrary to the hypotheses, identification did not significantly mediate the effect of interactive narratives on pharmaceutical nor photo attitudes. However, identification was a significant moderator of the effect of condition on pharmaceutical attitudes, b = 0.31, SE = 0.16, p = .05. Participants who reported higher levels of identification reported more story-consistent pharmaceutical attitudes in the interactive narrative condition; however, the simple slopes at each level of identification were not significant. See Figure 3.

Responsibility

In line with the predictions, participants who read the interactive narrative felt more responsibility for the story outcome than those who read the traditional narratives, F (1, 117) = 72.34, p < .001. An SPSS script by Preacher and Hayes (2008) was used to test for evidence of an indirect effect. There was evidence of an indirect effect of narrative condition on pharmacy attitudes through responsibility. This effect was statistically significant, z = 2.53, p = .01. Furthermore, using bootstrapping with 5000 samples, the 95% confidence interval obtained for the indirect effect did not contain zero (0.10, 0.66). These analyses support the model proposed in Figure 4 such that those who read the interactive narrative felt more responsibility, and increased responsibility predicted higher levels of disapproval of pharmaceutical gifts.

Similarly, there was evidence of full mediation for the likelihood ratings, such that the indirect effect of narrative condition on pharmacy-likelihood ratings through responsibility was

[2] Though the protagonist in the narrative was a male, there were no significant gender differences in identification, t (128) = -1.60, p = .11.

statistically significant, $z = 2.32$, $p = .02$. Furthermore, using bootstrapping with 5000 samples, the 95% confidence interval obtained for the indirect effect did not contain zero (0.10, 0.84). See Figure 5.

Character Evaluations

There was no main effect of narrative condition on character evaluations, F (1, 128) = 0.07, $p = .79$.[3]

Decision-making Methods

There was a significant positive correlation between readers making a decision based on what they would do and levels of identification, $r = .31$, $p = .01$, as well as with perceived realism, $r = .33$, $p = .01$, and story satisfaction, $r = .28$, $p = .03$. Similarly, there was a marginally significant correlation between readers making a decision based on what they would do and levels of transportation, $r = .23$, $p = .08$. Making decisions based on what the reader would do was positively correlated with disapproving attitudes toward accepting pharmaceutical gifts, ($r = .35$, $p = .005$), as well as negatively associated with participants' likelihood to accept pharmaceutical gifts ($r = .36$, $p = .005$). See Tables 2 and 4.

[3] However, character evaluations were significantly correlated with a number of measures, including transportation ($r = .20$, $p = .02$), identification ($r = .38$, $p < .001$), perceived realism ($r = .27$, $p = .002$), story satisfaction ($r = .36$, $p < .001$), responsibility ($r = .20$, $p = .03$), and making decisions based on what you would do ($r = .57$, $p < .001$). Additionally, character evaluations were negatively correlated with making decisions based on what would make an interesting story ($r = -.30$, $p = .02$).[3]

In contrast, there were no significant correlations between readers making decisions based on what the character would do and any engagement variables, attitude measures, or behavioral intention measures. Similarly, there were no significant correlations between readers making decisions based on what would make the most interesting story and any engagement variables, attitude measures, nor behavioral items.

Prior Thought

The amount of prior thought participants gave to pharmaceutical issues did not predict their pharmacy attitudes, $b = 0.07$, SE = 0.05, $p = .18$. Similarly, the amount of prior thought participants gave to photo issues did not predict their photo attitudes, $b = 0.04$, SE = 0.03, $p = .23$. Using prior thought as a control variable did not change any of the above results, nor did the interaction between narrative condition and prior thought reveal any significant effects.

Gender

Across all conditions, females ($M_{female} = 5.36$, $SD = 1.00$) showed more story-consistent pharmacy attitudes than males ($M_{male} = 4.75$, $SD = 1.00$), F (1, 189) = 17.74, $p < .001$. Similarly, females ($M_{female} = 6.19$, $SD = 0.79$) showed more story-consistent photo attitudes than males ($M_{male} = 5.90$, $SD = 0.82$), F (1, 188) = 6.20, $p = .01$.

Males ($M_{male} = 2.48$, $SD = 1.85$) reported more prior thought about pharmaceutical issues than females ($M_{female} = 1.79$, $SD = 1.22$), F (1, 166) = 8.20, $p = .005$. Conversely, females ($M_{female} = 5.04$, $SD = 1.68$) reported more prior thought about photo issues than males ($M_{male} = 4.53$, $SD = 2.00$); this difference was marginally significant, F (1, 184) = 3.63, $p = .06$.

Males ($M_{male} = 4.97$, $SD = 0.99$) reported higher levels of story satisfaction than females ($M_{female} = 4.48$, $SD = 1.04$), F (1, 128) = 7.38, $p = .01$.

Need for Cognition

There was an overall difference in participants' reports of need for cognition between conditions, such that those in the interactive condition reported higher levels of need for cognition than those in the other conditions, F (2, 188) = 3.16, p = .04. The effect of narrative condition on identification was significantly moderated by need for cognition, b = 0.60, SE = 0.30, p = .05. Participants higher in need for cognition reported significantly higher levels of identification in the interactive condition than in the traditional condition; this simple slope was significant, p = .01. See Figure 6.

Transportability

Participants did not report significantly different levels of transportability across conditions, F (2, 187) = 0.72, p = .49. The effect of narrative condition on perceived realism was significantly moderated by transportability, b = 0.20, SE = 0.09, p = .03. Those who reported high levels of transportability reported higher perceived realism when reading the interactive narrative. The effect of narrative condition on story satisfaction was also marginally significantly moderated by transportability, b = 0.25, SE = 0.14, p = .08. Those who reported high levels of transportability reported higher satisfaction with the story when reading the interactive narrative. However, none of the simple slopes for transportability were significant. See Figures 7 and 8.

Discussion

The results from Study 1 showed evidence that adding interactivity to a narrative leads to higher levels of identification, but not transportation or perceived realism. Although this is contrary to the original hypotheses, this finding is also encouraging; it is good to know that having to make decisions during the story does not *decrease* engagement (in fact, for both conditions, the means of all three engagement variables were above the midpoint).

Results from Study 1 suggest that the effect of interactive narratives on attitudes may be influenced by key variables such as responsibility and decision making methods. As predicted, responsibility mediated the effect of interactive narratives on attitudes toward pharmaceutical gifts. An unpredicted, but important, finding was that participants who made decisions based on what they would do, rather than what the character would do or what would make an interesting story, were more likely to show disapproval toward issues regarding pharmaceutical gifts. This finding makes sense, as making decision based on what you would do implies a high level of immersion into the narrative. This is evidenced by the significant correlations between making decisions based on what you would do and narrative engagement variables (identification, perceived realism, story satisfaction, and transportation).

Individual differences also played a key role in Study 1. In particular, need for cognition and transportability predicted increased engagement into interactive narratives, but not traditional narratives. This was not surprising; as stated above, interactive narratives are effortful, and people high in cognition are more likely to become immersed into these types of stories. In Study 2, I will continue to probe these results.

Results from Study 1 spurred further research questions. Might decision-making methods be an important factor when assessing the effect of interactive narratives on attitudes? Study 1 only measured decision-making methods after participants read the story; in Study 2, this variable was experimentally manipulated to assess its effect. Based on the results from Study 1, I predicted that when interactive narrative readers make decisions based on that they would do, rather than what the character would do or what makes the most interesting story, they will report higher levels of engagement (i.e., transportation, identification, perceived realism) and higher levels of responsibility. Furthermore, I predicted that those who make decisions based on

what they would do will show more story-consistent attitudes (i.e., disapproval toward the ethical issues portrayed in the story). I will examine the possibility that this effect will be independently mediated by responsibility, transportation, and identification. I also predict a replication of Study 1 results such that those higher in need for cognition will report higher levels of identification in the interactive conditions, relative to those who read the traditional narrative.

STUDY 2

Participants

Participants were 209 undergraduates enrolled in an introductory psychology course. Twelve data points were deleted due to computer errors (no data was recorded for those participants); thus, results are reported for 197 participants (99 females; 143 White; M_{age} = 19.33, SD_{age} = 1.52). All participants were given course credit in exchange for their participation.

Procedure and Design

The procedure was identical to Study 1. The same excerpt from *The Brewsters* was used. Participants were randomly assigned into one of five conditions:

1) A no-narrative control condition, identical to Study 1 (n = 42).
2) A traditional narrative condition, identical to Study 1 (n = 43).
3) An interactive narrative condition in which the readers are told to make decisions based on what they would do (*interactive-self* condition) (n = 36).
4) An interactive narrative condition in which the readers are told to make decisions based on what they think the character would do (*interactive-character* condition) (n = 42).
5) An interactive narrative condition in which the readers are told to make decisions based on what they think would make the most interesting story (*interactive-game* condition) (n = 34).

In the interactive-self condition, participants saw this set of instructions before the reading the story:

> You are about to read a story in which the main character is John Guerra, a third year medical school student. At certain points, you will be able to make decisions about the direction of the story. *At these points, we would like you to make decisions based on what you would do in the situation. Try to put yourself into the story when making decisions.* When you are ready, please click the arrow to begin reading.

For those in the interactive-character condition, the italicized phrases read: *At these points, we would like you to make decisions based on what you think the character, John would do. Try to think about John's qualities and traits when making decisions for him.* For those in the interactive-game condition, the instructions read: *At these points, we would like you to make decisions based on what you think will make the most interesting story. Think of the narrative as a game, and try to make the plot as entertaining as possible.* Participants in each of the interactive conditions then completed a brief attention check to ensure that they carefully read the instructions and understood their task. Also, in the survey after the narrative, participants were again asked to recall their instructions and the extent to which they felt they were able to follow the instructions. Identical to Study 1, those in the traditional narrative condition saw the introduction without any decision-making instructions.

Measures

All measures from Study 1 were included in Study 2; all Cronbach's αs were at similar, acceptable levels (αs > .68). An additional question was used to further assess feelings of responsibility ("How responsible do you feel for the outcome of the story?"). The two

responsibility items were highly correlated (r = .86), and so they were averaged together to form a composite responsibility measure.[4]

Results

Tables 5-6 contain means, standard deviations, and 95% confidence intervals for the dependent variables (Table 5) and individual differences (Table 6). Bivariate correlations between all measures can be found in Tables 7.1 and 7.2.

Overview of Analyses

The current study consisted of five conditions; thus, the analyses were done differently than in Study 1. Here, analyses of variance were conducted across all conditions to examine main effects of narrative condition. Then, when appropriate, post-hoc comparisons were done using Tukey's honest significant difference test (HSD). This test compared each of the five conditions against each of the remaining four conditions to examine pairwise differences (e.g., the interactive-self condition was compared to the other four conditions, then the interactive game-condition was compared to the other four conditions, and so forth). Additionally, in line with the hypotheses, two planned contrasts were used. The interactive-self condition (i.e., "make decisions based on what you would do") was directly compared to the traditional narrative condition, and the traditional narrative condition was compared to the average of all interactive conditions (interactive-all).

[4] There were also four exploratory items to further probe how those in the interactive conditions felt about making decisions (e.g., "To what extent do you wish you had made different decisions while reading the story?"). Analyses are not reported for these exploratory items.

Manipulation Check

Table 5 shows results for the manipulation checks. Only one participant incorrectly recalled his decision-making instructions. Overall, participants in the interactive conditions reported feeling able to follow the instructions, *M*s > 5.67, *SD*s < 1.24. However, there was a significant difference across conditions, such that those in the interactive-character condition were less able to follow the instructions than those in the other interactive conditions, F (2, 108) = 7.47, p = .001. (However, the mean for the interactive-character condition was 5.67, indicating that though it may have been slightly more difficult for these participants to follow instructions, it was still relatively easy. This difference appears unlikely to affect subsequent results).

Participants in each condition reported actually following the correct decision-making methods. ANOVAs examining the effect of narrative condition on each decision-making method revealed significant differences in the expected direction (e.g., those in the interactive-self condition reported making decisions based on what they would to more than making decisions based on what the character would do or making decisions based on what would be most entertaining), *F*s > 69.18, *p*s < .001.

Main Effect for Pharmacy and Photo Attitudes

There was no evidence for a main effect of condition on pharmacy attitudes, F (4, 190) = 1.16, p = .33. Post-hoc comparisons using the Tukey's HSD test indicated no significant pairwise differences between conditions. Surprisingly, those who read the traditional narrative reported the less story-consistent attitudes than participants in all other conditions, including control.

Similarly, there was no evidence for a main effect of condition on photo attitudes, F (4, 189) = 0.14, p = .97. Post-hoc comparisons using the Tukey's HSD test indicated no significant pairwise differences between conditions.

Main Effects for Behavioral Intention Items – Pharmaceutical

There was evidence for a main effect of condition on how tempted participants would be to engage in unethical pharmaceutical behaviors, F (4, 190) = 4.74, p = .001. Post-hoc comparisons using the Tukey's HSD test indicated that those in the control condition reported more story-consistent temptation ratings than those who read the traditional narrative or the interactive-game narrative. Similarly, there was evidence for a main effect of condition on how likely participants would be to engage in unethical pharmaceutical behaviors, F (4, 188) = 2.61, p = .04. Post-hoc comparisons using the Tukey's HSD test indicated that those who read the traditional narrative reported less story-consistent likelihood ratings than those who read the interactive-self narrative or those in the control condition.

Participants' ratings for all three behavioral subscales were significantly correlated with ratings of responsibility (rs > .17, ps < .05), such that those who reported higher levels of responsibility for the character's decisions in the story also reported more story-consistent behavioral judgments. Participants' likelihood ratings were significantly positively correlated with perceived realism (r = .22, p = .01) and need for cognition (r = .20, p = .01).

Main Effects for Behavioral Intention Items – Photos

For each of three subscales, there was no evidence for a main effect of condition on participants' ratings of unprofessional photo behaviors, Fs < 1.04, ps > .05.

Narrative Engagement

Contrary to the hypotheses, there was no evidence for main effects of condition on transportation, identification, perceived realism, or story satisfaction, Fs < 1.28, ps > .05. Furthermore, post-hoc comparisons using the Tukey's HSD test indicated no pairwise difference between conditions for any of the engagement variables. Across all conditions, transportation

was significantly correlated with photo attitudes, $r = .18$, $p = .03$. However, because there were no main effects of condition on the engagement variables, these variables could not be examined as possible mediators to test the hypotheses.

Responsibility

There was evidence for a main effect of narrative condition on responsibility, F (3, 139) = 19.47, $p < .001$. Post-hoc comparisons using the Tukey's HSD test indicated that participants in each of the interactive narrative conditions reported significantly higher levels of responsibility than those in the traditional narrative condition. There were no significant pairwise differences in responsibility amongst the three interactive narrative conditions.

Responsibility was significantly correlated with pharmacy attitudes, $r = .22$, $p = .01$. Consistent with predictions, there was a significant indirect effect of condition on pharmacy attitudes through responsibility, $z = 2.07$, $p = .04$; the 95% confidence interval did not contain zero (0.01, 0.15). As stated above, participants in the interactive conditions reported higher levels of responsibility; higher levels of responsibility predicted more story-consistent pharmacy attitudes (i.e., disapproval of pharmaceutical gifts). See Figure 9.

Responsibility was also significantly correlated with story-consistent ratings on all three pharmaceutical behavioral measures (temptation, big deal, likelihood), rs > .17, ps < .05.

Gender

Across all conditions, females showed more story-consistent photo attitudes (M_{female} = 6.18, SD_{female} = 0.75) than males (M_{male} = 5.62, SD_{male} = 0.86), t (190) = 4.84, $p < .001$. Similarly, females showed more story-consistent pharmacy attitudes than males (M_{female} = 5.23, SD_{female} = 0.92; M_{male} = 4.88, SD_{male} = 1.11), t (191) = 2.41, $p = .02$. These differences emerged even when

controlling for amount of prior thought. There was no main effect of gender on any other dependent variable. Gender did not moderate the effect of condition on either attitude variable.

Need for Cognition

Across all conditions, need for cognition was significantly correlated with transportation, $r = .19$, $p = .02$, as well as identification, $r = .25$, $p = .002$, and perceived realism, $r = .26$, $p = .001$. Need for cognition was not correlated with any other dependent variables.

Contrary to the hypotheses, higher need for cognition did not predict an increase in levels of identification in the interactive conditions, $b = 0.35$, SE = 0.28, $p = .21$; nor did it predict an increase in levels of perceived realism, $b = 0.32$, SE = 0.21, $p = .13$. However, need for cognition did predict higher levels of transportation in the interactive conditions, $b = 0.42$, SE = 0.19, $p = .03$. See Figures 10-12.

Transportability

Across all conditions, transportability was significantly correlated with transportation, $r = .51$, $p < .001$. When transportability was entered as a covariate in all analyses reported above, the results were not affected (i.e., significant results remained significant and non-significant results remained non-significant). [5]

Prior Thought

The amount of prior thought participants gave to pharmaceutical issues did not predict their pharmacy attitudes, $b = -0.002$, SE = 0.06, $p = .98$. Higher levels of prior thought about photo issues did significantly predict more story-consistent photo attitudes, $b = 0.10$, SE = 0.18,

[5] While an omnibus test revealed a marginally significant effect of condition on transportability, F (4, 189) = 2.08, p =.08, post-hoc comparisons using the Tukey's HSD test indicated no significant pairwise differences between conditions.

p = .004 (however, using prior thought as a covariate in photo attitude analyses above did not affect the significance of any results). [6]

Discussion

Contrary to the hypotheses, results from Study 2 did not provide evidence that making decisions based on what you would do in the interactive narrative predicted higher levels of engagement. Further, different decision-making methods did not directly predict story-consistent attitudes. Thus, the decision-making manipulation was not successful.

However, Study 2 did replicate important findings from Study 1. Individual difference measures played an important role in engagement with interactive narratives. Consistent with the hypotheses, participants higher in need for cognition were more likely to report higher levels of identification with interactive narratives (as well as higher transportation and higher perceived

[6] Character evaluations were also measured in Study 2. There was evidence for a main effect of narrative condition on character evaluations, F (3, 136) = 5.40, p =.002. Post-hoc comparisons using the Tukey's HSD test indicated participants in the interactive-game condition evaluated the character less favorably than those in all other narrative conditions. There were no significant pairwise differences in character evaluations amongst the traditional, interactive-self, and interactive character conditions. Participants' character evaluations did not significantly predict any dependent variables. When contrasting the traditional narrative and interactive-self narrative, need for cognition moderated the effect of condition on character evaluations, b = -0.68, SE = 0.29, p = .02. Higher need for cognition predicted more favorable character evaluations in the traditional narrative condition, but less favorable character evaluations in the interactive-self condition.

realism). Further results from Study 1 that were replicated in Study 2 included the effect of responsibility. Participants who read an interactive narrative (with any decision-making method) reported higher levels of responsibility; these higher levels of responsibility predicted story-consistent attitudes.

GENERAL DISCUSSION

The current studies empirically tested the effects of written interactive narratives on attitude change. While the results were not wholly conclusive, the data shed light on previously unknown effects of interactive narratives.

Across two studies, I identified important factors of interactive narratives (and readers) that make them engaging and possible tools for attitude change. Existing literature has suggested that adding interactivity to a narrative could decrease reader engagement. However, Study 1 revealed that transportation and perceived realism did not differ between traditional and interactive narratives, and adding interactivity to a narrative actually increased identification. Identification was also important because people who highly identified with the character tended to make decisions in the interactive narrative based on what they would actually do. These results provide insight on how people respond to the decision-making aspect of interactive narratives.

Unfortunately, contrary to the hypotheses from Study 2, the way that readers made decisions in the interactive narratives did not affect attitudes. Though the means were in the predicted direction (i.e., those who made decisions based on what they would actually to reported more story-consistent attitudes), the effects were small and non-significant. While it is possible that the decision-making findings from Study 1 were spurious results, it is more likely that the decision-making manipulation in Study 2 was just too subtle and not strong enough. Participants reported obeying the decision-making instructions that they were given in each

condition; however, future research could reinforce the instructions throughout the story to strengthen the manipulation.

In both Study 1 and Study 2, responsibility was a key factor. Interactive narrative readers felt more responsible for the character's decisions and the story outcomes than traditional narrative readers. High level of responsibility also predicted story-consistent attitude change in both studies. Because they were actually able to direct the plot of the story, interactive narrative readers were likely more invested in the story and made more internal attributions for the events in the story, thus fueling their attitudinal change.

Though not initially predicted, results from both studies also revealed that certain individual differences (i.e., higher need for cognition, higher transportability) increased readers' levels of transportation (Study 2), identification (Study 1 and Study 2), and perceived realism (Study 1 and 2) in interactive narratives. Making decisions in interactive narratives can be an effortful task; people higher in need for cognition may be more well-suited for these types of narratives, while low need for cognition readers may find the decision-making distracting and frustrating. Additionally, readers who are easily absorbed into a story world should be more willing to suspend disbelief and judge an interactive narrative as realistic. Future research should examine these variables when assessing the effects of interactive narratives.

Limitations

One important limitation in the current studies was the lack of a direct effect of interactive narratives on attitudes. In both Study 1 and Study 2, interactive narratives *indirectly* affected attitudes toward pharmaceutical issues through responsibility. Though the story contained a vivid section about the perils of taking unprofessional photos, results indicated that the story did not affect readers' attitudes toward photos (even when controlling prior thought

about photos). Participants in all conditions, including control, reported negative evaluations of posting inappropriate pictures. This suggests that participants may have already had strong attitudes about this issue; thus, there was little room for their attitudes to change in response to the story. Additionally, the lack of direct effects may suggest that the story was not as powerful as I hoped. It is possible that a different interactive narrative would produce different results.

Future Directions

Results from Study 1 provided two interesting avenues for further research: identification/decision-making and responsibility. In Study 2, I chose to explore identification/decision-making. I have already planned an additional follow-up study to further explore the concept of responsibility in interactive narratives. In both studies reported here, responsibility partially mediated the effect of interactivity on attitudes. In the follow-up study, I intend to manipulate participants' feelings of responsibility before they read the interactive narrative. Some readers will be able to freely make the decision they want to make, while other participants will always be told which decision to make (i.e., free-choice vs. guided-choice). I expect that those in the free-choice condition will feel more responsibility and will report more story-consistent attitudes.

CONCLUSION

Interactive narratives are entertaining and useful tools for education. Written interactive narratives have remained popular among children, young adults, and even medical school students. As technology continues to advance, electronic interactive narratives will undoubtedly become more common. As such, more research should be devoted to understanding these narratives. With further research, interactive narratives may emerge as useful tools for attitude change and, similar to *The Brewsters*, they can be put to good use influencing attitudes about important ethical issues.

APPENDIX A: NARRATIVE EXCERPT FROM *THE BREWSTERS*

To: John Guerra, MS3

Enrique Hernandez, MD

Cordially invites all Health Science Center students to his annual

Incoming Class Party and Barbecue

Sunday, August 14

1:00 PM

1314 West 6th Avenue

Please RSVP and bring your swimsuit!

It's one of the most anticipated days of the year: Dr. Hernandez's pool party for the medical school students and faculty.

Sunlight glitters across the pool like out-of-season tinsel, moving and blending and splitting apart again with the bodies splashing about in the water. You sip your drink and will your body to relax even more into the chaise lounge. The sun will chase you into the cool of the pool soon enough – right now you feel on the verge of a perfect moment, a bit of Hill Country Zen you could carry for comfort into your hectic third year of medical school.

Then the moment is gone. Cheryl Stewart rises from the pool, still dripping, towel rubbing across her dark skin. She lands in the lounge next to you with an audible sigh. "I don't know about you, but I needed this. Did you need this?"

You smile lazily and say, "I needed this."

She begins to violently buffet her hair with the towel. "You know what I didn't need?" A pause in the hair drying, as she peeks out from the towel. "The first year students keep getting younger."

"It's not that they're getting younger, it's that you're --"

There is an audible *snap!* as Cheryl brings the wet towel across your chest. "I may be four years older than you, but finish that sentence and I will *finish* you."

"Fair enough," you grin. The wet towel had felt good across your bare chest. The hot Austin summer is doing its best to hang on into the fall, and you know you will soon have to leave this chair, and worse, your drink, to enter the cold embrace of the pool. You look at the pool, crowded with students, some laughing, some splashing, most trying hard to look cool. Some you know, most you don't.

"Have you seen Dr. Hernandez yet?" you ask Cheryl.

"Couple of times. He keeps coming in and out, playing host. Why? You looking forward to his annual big speech to the newbies? Think it'll be the same one as last year?"

You drain your drink. "Oddly enough, yeah, I am. I think he really means all that stuff. At least, I hope he does."

Cheryl smiles and sips her drink. She looks around at the party surrounding her. "Someday I hope I can give the same kind of inspiration to my students. Of course, I'd like a successful practice to afford a pool like this, too."

You rise from the chaise. "I think we need to get you graduated from med school first."

"Yeah, that would probably help."

You pick up the empty bottle and toss it in a nearby bin. "My turn in the pool. Stand back. There's probably going to be steam when I hit the water."

Cheryl laughs and drains her drink. "Don't give yourself airs."

The water is indeed cold and you're happy you had the self-control to not yell "Cannonball!" when you jumped in. There had already been several of those,.

You plunge your head into the cooling chlorine. You surface, trying to do the awesome head toss you'd seen on so many TV shows, and failing. A lap or two around the pool would be nice, but there are too many bodies in the way. You float about a bit, getting splashed and splashing in return, until you feel the need for the sun again… and, to be honest, more drink… and leave the pool.

As you towel off, you walk toward one of the many coolers. The contents are plentiful and varied. Beer, of course. Soft drinks. Sparkling water. You make your decision and reach into the crushed ice, pulling out…

Decision: pull out a beer or pull out a soda?

...pulling out a [cold beer/cold diet soft drink] and twisting the cap off.

Finally, there, at the house, you see your host: Enrique Hernandez, MD, MPH himself, showing some newcomers out to the pool.

Even dressed casually, Dr. Hernandez always looks professional, you think; the khaki pants and linen shirt wouldn't have looked out of place in some mosquito-netted jungle hospital, and you're fairly certain you have never seen the doctor sweat.

You hear your name. "John! Hey! John, come over here! You too, Cheryl!"

You finally find the voice's owner, standing waist deep in the shallow end of the pool. *What is his name? Walter, right?* Walter is waving you and Cheryl over. In one hand he has a ludicrously pink plastic camera. Walter is motioning to a group forming a few feet away in the pool. "I need a picture! Come on!" Several others start motioning and calling.

Walter motions everyone to get closer together. "Everybody got a beer? Good."

One of the girls looks at the cup in her hand. "Rum and Coke okay?"

Walter grins. "Even better." He begins setting up the camera as you approach the group. "Okay, everybody, this is for my Facebook. I need to show all my old fraternity brothers who are

getting their MBAs that they made a poor life choice, so I need everyone to look like we are at the Party of the Century. It's my hope to make them want to slash their wrists with their spreadsheets." Walter looks up from the camera, a twinkle in his eyes. "So if any of you ladies want to show a little extra flesh, please feel free." He returns his attention to the camera. "Hurry up, John and Cheryl. I want to see drunk and lecherous on the count of three! One!... Two!..."

DECISION: Join the group photograph or decline the photography session?

If you join the photograph:

You press yourself into the mass of flesh and look at the camera on "3!" There's a flash, surprisingly bright in the midday sun. "Okay," says Walter. "You guys didn't look crazy enough. Try again and get closer together."

There's some generalized splashing and you feel more bodies pressing around you as Walter begins to count down again. "Come on! That's got to be more enjoyable than you're making it look! One!... Two!... Three!"

The crush around you begins to relax, but Walter's still making like some clichéd tyrant film director: "More wanton! Think *Health Students Gone Wild*!" and the crush returns around you. There are even a couple of calls of "Woo hoo!" Someone shoves a beer into your hand. Blue blobs are dancing before your eyes from the flash, but you're more than aware that some very attractive young women are pressing themselves against you. One throws her arms around your neck and plants an impulsive kiss on your cheek. You can't help grinning like a madman. A somewhat embarrassed madman, but what appears to be what Walter wants as the flash goes off again.

The tangle of bodies loosens itself. You cast about for the girl who grabbed you, but whoever she was, she's gone, off with someone else or in one of the giggling clutches trying to peer over Walter's shoulder at the camera. You blink rapidly, trying to get rid of the flash spots obscuring your vision. One more photo, you think and you might not have been able to find your way out of the pool…

Two weeks later, you predictably have your hands full. You're certain there are people somewhere in the universe with busier schedules, but you can't find it in your heart to feel sorry for them.

There's something else too. You're seeing a lot of knowing smiles and hearing an occasional "Hey, Tiger!" or similar remark- like there's a secret organization of people around you that know something you don't. But, you also believe it's too early in the year for stress-related paranoia, so you mentally shrug it off and try to bury yourself in your studies.

Until you get a comment muttered to you in passing while you're talking to Cheryl in the hall. "Jerk."

Looking at the nursing student as she walks away, you turn to Cheryl. “Do you have any idea what that’s about? I’ve been getting it a lot, lately.”

She looks at you pityingly. “You mean… you don’t know?”

“Know what?”

She pulls you into an empty room and begins setting up her laptop on a desk. As it boots, she asks, “So you didn’t get the email from Walter?”

“Walter? I generally just delete those. If he’s not trying to set up a party, it’s all whining about first-year stuff that doesn’t concern me.”

“Oh, this might,” she says, angling the screen toward you. You instantly recognized the thumbnail photo layout of Facebook.

You had an account back in the undergraduate days. You haven’t paid much attention to it since…

Wait a minute. You recognize some of those people in the picture. It takes you a second longer to recognize yourself, you’re grinning so widely in the photo, showing none of that embarrassment you remember. Well, now you know what the girl who kissed you looked like. You don’t remember putting your arm around the girl in front of you, your beer bottle dark against her belly. And you certainly don’t remember grabbing her top and…

“Oh, wow…” you say.

Cheryl considers your witty reply. “Yup, *wow* is a very good reaction.”

“I… I had no idea that was going on.”

“That’s another possible reaction. Frankly, I liked *Oh, wow* better.”

“I’ve got to get him to take that down!”

“I don’t think you’re the first one with that reaction, John, but I’m afraid the damage is already done. Let me show you what a Google search for your name brings up…”

Later that day, you find yourself in front of your mail cubby. An envelope, looking very innocent except for the return address, its top line in bold, impressive copperplate print: OFFICE OF THE DEAN OF STUDENTS.

Staring at it isn’t going to improve it, you decide, and you pull it out and rip it open swiftly.

Dear Mr. Guerra:

It has been brought to our attention by the parent of a student that a certain series of photographs taken during a party at the beginning of the semester have been published on the Internet. These photographs document activities and behavior that do not reflect the image and reputation of our institution and its student body, of which we are justly proud.

Therefore, this Office has no choice but to launch an investigation into these photographs and the people responsible. Please make an appointment with the Dean of Students as soon as possible.

There's more, but you're concentrating on the plummeting feeling in your gut. This is not going to be pretty…

If you decline the group photo:

You laugh and quietly swim away from the group, hoping that the laugh will soothe any hurt feelings. Lifting yourself up to sit on the edge of the pool, you dry off and head toward the hors d'oeuvres table in the house for some cheese and crackers, instead of the cheesecake you just passed up.

A moment later, you spot Cheryl. "You didn't want to be in the group shot either?" you ask.

"Group shots I'll do. What Walter wants is an orgy."

You glance back at the group in the pool. Walter is calling for a second shot. "More wanton! Think *Health Students Gone Wild!"*

"Why didn't *you* do it? Not enough girls in there?" Cheryl is smirking.

You laugh. "Enough for me. Not for Walter, apparently." You shrug. "Didn't feel right. Maybe it's something I would have done back in my freshman year, but…"

Cheryl laughs. "Let me tell you a secret. Not *even* in my freshman year. And when I am in one of these photos, I try to make sure I don't have a drink in my hand, or anything like that."

"Really? Why?"

"Something I noticed back in *my* freshman year, genius. My roommate was laughing and showing me this website with all these photos of drunken girls and I realized that they had all been taken from personal sites and whatnot."

"Yeah, I think I've heard about things like that. Something."

"Well, once stuff like that is out on the Internet, it stays out there forever. So if something like that ever shows up- particularly if it shows up after I've got that 'Doctor' in front of my name? No way, Jose. I want to be known as 'The Sober Girl On The End.'"

"Smart." You put on your best serious face. "Is this the wisdom that comes with age?"

She gives you a look you have seen a thousand times. "You know, I bet there is enough going on in that pool that I could drown you and get away with it..."

Sometime later, you are trapped in conversation with Walter. You try to excuse yourself again, but Walter keeps engaging you. You figure, *what the heck*, and chat a bit longer. During the conversation, Walter mentions how excited he is about the White Coat Ceremony at the end of the school year. You remember yours and assure him it will be one of the major highlights of his first year. Like a kid with a shiny new pencil box and fresh school supplies, he proudly tells you how he thoroughly researched and bought all of his supplies months ago. He is particularly proud of his brand new, stainless steel stethoscope. But not because it can let you hear everything from the faintest heartbeat of an unborn child to a full-grown adult. And not because it comes with non-chill rims and adjustable double-leaf binaural springs. And certainly not because it has soft-sealing ear tips or has his name engraved across the head. None of these are as important, Walter points out, as one simple feature – it was free.

For the first time during the conversation, Walter has your full attention. Good stethoscopes are expensive. A wave of jealousy overcomes you as you think about your old, green, off-brand, too-short, pediatric scope. You've had the thing ever since you were in undergrad. It still works, but life sure would be better with a new one.

"That's a nice present, Walter," you admit.

"Oh it wasn't a present." Walter thinks for a moment before continuing. "Hey, I bet you could get one too."

"I could? How?"

Walter explains that the scope was given to him by a pharmaceutical representative. He met the rep at a conference. The rep said that her company likes to help out medical students, so they authorized her to provide students with free textbooks or basic instruments. They have access to discontinued medical devices. Walter produced a card from his wallet with the rep's information.

"Here, John. Take this card. I bet she can get you one too."

You hold the card in your hand. Wow, you think, a new stethoscope. A good stethoscope. You always look at them online and fantasize about having one with long tubing. It's terribly distracting to be looking up at your patient's nose every time you listen for a heartbeat. And it

would be great to have one in a conservative color. The green was okay during undergrad, but a brand new, twenty-seven inch, in simple gray?...*Yes, very professional.*

You notice the rep's mobile number is on the card. You could probably leave a voicemail and get together sometime during the week. You reach into your pocket and feel your cell phone. *Or should I?* You realize that accepting something for free, even a cup of coffee, from a sales rep of any kind is ethically complicated. You start thinking, *what's the harm in taking something that's discontinued?* If I don't take it, it will probably be shipped off to some third-world country to be used by some Doctor Without Borders. Not that it isn't important for poor countries to get supplies, but they usually get help from charitable organizations…and I would be taking just *one*. Who knows, maybe I'll even volunteer myself one day and they wouldn't have to furnish me with a stethoscope, because I would already have one. *Right?*

DECISION: call the pharmaceutical representative or keep your old stethoscope?

If you call the pharmaceutical rep:

The day after the party, you get back to business. As you roll out of bed, you fumble for your phone on the nightstand. The screen reads, "MISSED CALL: HEATHER MONROE."

You don't know a Heather Monroe, but as you put your phone back on the nightstand, you spot the business card that Walter gave you. It reads, "Heather Monroe, Sales Representative, DECO Pharmaceutical." *Oh yeah, now I remember.*

You push Redial on the phone. You don't expect the sales rep to answer at this ungodly hour, but to your surprise, the phone rings only twice before a voice answers:

"Hello, this is Heather Monroe."

"Hi Ms. Monroe, this is John Guerra. I am so sorry to wake you, I--"

"No, no, you didn't wake me, I'm up and having coffee already. I'm an early riser. It's going to be a beautiful day! How can I help?"

Nobody has the right to be this perky in the morning, you think. *Must be genes. Or incredibly strong coffee.* You explain how you received her card from Walter and that you didn't know if she had any more stethoscopes, but that you could sure use one. You throw in that you understand that these are discontinued models and not considered of value anymore. Heather corrects you that these are brand new. She informs you that not only does she have one, but she will make sure you get exactly what you want – color and all – and with your name engraved across the chest piece. Heather offers to meet you by the end of the week to deliver it to you, personally. You and Heather arrange a meeting by the sushi bar in the campus dining facility.

At the end of the week, you're in the cafeteria line after a grueling morning of rounds that was follow by an obstetrics lecture, which was capped by a long observation of a cesarean that produced three beautiful baby boys. Lunch is going to taste good, even this food. You spy Cheryl three spots ahead of you in line, who turns to see you almost immediately. She lifts up her tray and walks back to join you.

"Hey," she says.

"Hi," you reply. "Can I buy you lunch?"

"Why, indeed you may! I'll take a steak!" she says.

"Would you settle for a tuna sandwich and soft drink combo like mine?"

"That was my second choice."

As she thanks you, you notice that Cheryl's eyes are not looking at you. Cheryl is staring at your neck. "Man, that's *sweet*, John." She lifts the chest piece of your shiny new stethoscope, which you can now wear around your neck because of its extra long tubing. "Top quality." She turns it over. "Engraved! How did you manage to spring for it?"

You tell her about the sales rep, and offer to pass on the business card so she can get a stethoscope, too.

Cheryl's face turns sour. The scope drops back on your chest. "John, I'm surprised at you."

You're not sure if she's joking or serious. Then you figure she's serious but are not sure why she's upset. "What for?"

"*What for?* That rep is bribing you, that's *what for*. She is trying to get you into the habit of using, and then eventually buying, her products. Didn't you learn anything in ethics? Does '*There's no such thing as a free lunch'* ring a bell?"

You get a little indignant. "Get real, Cheryl. It will be years before I'm able to prescribe anything. You think I'm not smart enough to know when I'm being manipulated? Give me a little credit, please. There are no strings attached to this gift, not in my mind, at least. The pharmaceutical rep is being gracious, that's all. When one day, in the far distant future, I prescribe meds, I may remember her kindness, but nothing more. I'll prescribe the right medicine for my patients, and it will be whatever provides the most value to my patients, not the most gifts to me I probably won't even remember the name of her company. Okay?"

Cheryl says nothing.

"Okay, I know what you're thinking. It's a slippery slope, and blah, blah, blah…"

Cheryl still says nothing.

"Oh, and I'll bet *you* never took anything from a sales rep? A cheap pen? A notepad? Are you telling me you never attended an education seminar they funded? Or ate the lunch they paid for? Not even the donuts they bring to grand rounds? Also, with this new equipment, I'll be able to provide better care to my patients, which is important, right?"

Cheryl turns toward the front of the line. The cashier is just coming up. "Whatever you say, John," she says.

A few weeks later, you are at the end of seeing your first set of real patients, under Dr. Hernandez's supervision. Even though it was a long day, you are filled with happiness and excitement – the patients seemed to trust and like you, and you feel one step closer to your goal of being a doctor. You hope that Dr. Hernandez is impressed with your work.

Before you leave for the day, you stop by Dr. Hernandez's office to check in and make sure your patient recommendations were approved.

You knock on his door. "Hi, Dr. Hernandez. I just want to make sure everything was in order before I head home."

"John, I was just about to come find you. Please come in. We have a problem," says Dr. Hernandez.

You walk into his office, worried, and have a seat. Dr. Hernandez says, "I notice that you recommended that we prescribe a patient a DECO drug, rather than the generic brand. If I hadn't double-checked this, the patient would have to pay twice the price for the DECO, which works no better than the generic. Our goal is to give patients the best care at the best value. Why did you prescribe the DECO?"

You didn't recognize the company name when you were quickly prescribing it, but now it dawns on you that DECO is Heather Monroe's company. Your cheeks burn with embarrassment as you hang your head with disgrace. As you're wondering how you can explain this to Dr. Hernandez, you see your stethoscope hanging from your neck. *This thing is going straight to Doctors Without Borders tomorrow morning*, you think to yourself…

If you don't call the pharmaceutical rep:

You put your phone back in your pocket. *Nah, my old stethoscope's got personality,* you say to yourself. *I'll buy my own scope when the time is right, and with no strings attached.*

In the days after the party, you get back to business. At the end of the week, you're in the cafeteria line after a grueling morning of rounds that was follow by an obstetrics lecture, which was capped by a long observation of a cesarean that produced three beautiful baby boys. Lunch is going to taste good, even this food. You spy Cheryl three spots ahead of you in line, who turns to see you almost immediately. She lifts up her tray and walks back to join you.

"Hey," she says.

"Hi," you reply. "Can I buy you lunch?"

"Why, indeed you may! I'll take a steak!" she says.

"Would you settle for a tuna sandwich and soft drink combo like mine?"

"That was my second choice."

As she thanks you, your eyes drift down to the shiny metal on around her neck. "Man, that's *sweet*, Cheryl." You lift the chest piece of her shiny new stethoscope, envious of its extra long tubing. "Top quality." You turn it over. "Engraved! How did you manage to spring for it?"

She tells you that Walter mentioned the same sales rep to her. Cheryl offers to pass on the business card so you can get a stethoscope, too.

Your face turns sour. You drop the scope back on her chest. "Cheryl, I'm surprised at you."

She looks taken aback What for?"

"*What for?* That rep is bribing you, that's *what for*. She is trying to get you into the habit of using, and then eventually buying, her products. Didn't you learn anything in ethics? Does '*There's no such thing as a free lunch'* ring a bell?"

She gets a little indignant. "Get real, John. It will be years before I'm able to prescribe anything. You think I'm not smart enough to know when I'm being manipulated? Give me a little credit, please. There are no strings attached to this gift, not in my mind, at least. The pharmaceutical rep is being gracious, that's all. When one day, in the far distant future, I prescribe meds, I may remember her kindness, but nothing more. I'll prescribe the right medicine for my patients, and it will be whatever provides the most value to my patients, not the most gifts to me. I probably won't even remember the name of her company. Okay?"

You say nothing.

"Okay, I know what you're thinking. It's a slippery slope, and blah, blah, blah…"

You still say nothing.

"Oh, and I'll bet *you* never took anything from a sales rep? A cheap pen? A notepad? Are you telling me you never attended an education seminar they funded? Or ate the lunch they paid for? Not even the donuts they bring to grand rounds?"

You turn toward the front of the line. The cashier is just coming up. "Whatever you say, Cheryl."

A few weeks later, you and Cheryl are at the end of seeing your first set of real patients, under Dr. Hernandez's supervision. Even though it was a long day, you are filled with happiness and excitement – the patients seemed to trust and like both of you, and you feel one step closer to your goal of being a doctor. You hope that Dr. Hernandez is impressed with your work.

Before you leave for the day, you both stop by Dr. Hernandez's office to check in and make sure your patient recommendations were approved.

You knock on his door. "Hi, Dr. Hernandez. We just want to make sure everything was in order before we head home."

"Cheryl, I was just about to come find you. Please come in. We have a problem," says Dr. Hernandez.

Cheryl, looking worried, walks in while you stand in the doorway. Dr. Hernandez says, "I notice that you recommended that we prescribe a patient a DECO drug, rather than the generic brand. If I hadn't double-checked this, the patient would have to pay twice the price for the DECO, which works no better than the generic. Our goal is to give patients the best care at the best value. Why did you prescribe the DECO?"

You don't recognize the company name immediately, but it suddenly dawns on you that DECO is the pharmaceutical rep's company. You see Cheryl's cheeks turn red with embarrassment while she hangs her head in disgrace, and you wonder how she is going to explain this to Dr. Hernandez. *She will have to send that stethoscope straight to Doctors Without Borders tomorrow morning*, you think to yourself…

APPENDIX B: MEASURES

1. If you were a medical student or a doctor, how *tempted* would you be to accept gifts from pharmaceutical companies?

1	2	3	4	5	6	7
not tempted						very tempted

2. If you were a medical student or a doctor, how *likely* would you be to accept gifts from pharmaceutical companies?

1	2	3	4	5	6	7
not likely						very likely

3. Imagine that you have a friend who is a medical student, and this friend was about to accept a gift from a pharmaceutical representative. Would you encourage or discourage your friend from doing so?

1	2	3	4	5	6	7
definitely discourage						definitely encourage

4. How upset would you be if your friend posted pictures of you online in which you had an alcoholic drink in your hand?

1	2	3	4	5	6	7
Not at all upset			Moderately upset			Very upset

5. How upset would you be if your friend posted pictures of you online in which you appeared intoxicated?

1	2	3	4	5	6	7
Not at all upset			Moderately upset			Very upset

6. How likely would you be to post pictures of your friends online in which your friends have an alcoholic drink in their hands?

1	2	3	4	5	6	7
not likely at all						very likely

7. How likely would you be to post pictures of your friends online in which your friends appear intoxicated?

1 2 3 4 5 6 7
not likely at all very likely

Rate how much you agree or disagree with the following statements.

1 – Strongly disagree
2 – Disagree
3 – Somewhat disagree
4 – Neither agree nor disagree
5 – Somewhat agree
6 – Agree
7 – Strongly agree

1. It's acceptable for medical professionals to accept gifts from pharmaceutical representatives.

2. It's acceptable for my friends to post pictures of me online in which I have an alcoholic drink in my hand.

3. It's acceptable for my friends to post pictures of me online in which I appear intoxicated.

4. It's acceptable for my friends to post pictures of me online in which I am acting crazy at a party.

5. It's acceptable for me to post pictures of my friends online in which they have an alcoholic drink in their hand.

6. It's acceptable for me to post pictures of my friends online in which they appear intoxicated.

7. My professional career would be negatively affected if my friends posted pictures of me online in which I appear intoxicated.

8. My professional career would be negatively affected if my friends posted pictures of me online which I have drinks in my hand.

Attitudes toward accepting gifts from pharmaceutical companies

On the scales below, please rate your judgments toward doctors accepting gifts from pharmaceutical companies.

1	2	3	4	5	6	7
wise						foolish
1	2	3	4	5	6	7
right						wrong
1	2	3	4	5	6	7
positive						negative
1	2	3	4	5	6	7
necessary						unnecessary
1	2	3	4	5	6	7
moral						immoral
1	2	3	4	5	6	7
risky						unrisky
1	2	3	4	5	6	7
acceptable						unacceptable

Attitudes toward unprofessional photos

On the scales below, please rate your judgments toward allowing pictures of yourself appearing intoxicated to be published online.

1	2	3	4	5	6	7
wise						foolish
1	2	3	4	5	6	7
right						wrong
1	2	3	4	5	6	7
positive						negative
1	2	3	4	5	6	7
necessary						unnecessary
1	2	3	4	5	6	7
moral						immoral
1	2	3	4	5	6	7
risky						unrisky
1	2	3	4	5	6	7
acceptable						unacceptable

Character Evaluations

Please rate your judgments toward ***John*** on the scales below:

1 wise	2	3	4	5	6	7 foolish
1 good	2	3	4	5	6	7 bad
1 pleasant	2	3	4	5	6	7 unpleasant
1 attractive	2	3	4	5	6	7 unattractive
1 strong	2	3	4	5	6	7 weak
1 moral	2	3	4	5	6	7 immoral
1 decisive	2	3	4	5	6	7 indecisive
1 intelligent	2	3	4	5	6	7 unintelligent

Narrative Transportation Scale

1	2	3	4	5	6	7
Not at all						Very much

1. While I was reading the narrative, I could easily picture the events in it taking place.

2. While I was reading the narrative, activity going on in the room around me was on my mind. (r)

3. I could picture myself in the scene of the events described in the narrative.

4. I was mentally involved in the narrative while reading it.

5. After the narrative ended, I found it easy to put it out of my mind. (r)

6. I wanted to learn how the narrative ended.

7. The narrative affected me emotionally.

8. I found myself thinking of ways the narrative could have turned out differently.

9. I found my mind wandering while reading the narrative. (r)

10. The events in the narrative are relevant to my everyday life.

11. The events in the narrative have changed my life.

12. I had a vivid mental image of the events in the story.

13. I had a vivid mental image of John.

14. I had a vivid mental image of Cheryl.

15. I had a vivid mental image of Dr. Hernandez.

Identification Scale

1	2	3	4	5	6	7
Not at all						Very much

1. While reading the story, I felt as if I was part of the action.

2. While reading the story, I forgot myself and was fully absorbed.

3. I was able to understand the events in the story in a manner similar to that in which John understood them.

4. I think I have a good understanding of John.

5. I tend to understand the reasons why John does what he does.

6. While reading the story I could feel the emotions portrayed by John.

7. While reading, I felt I could really get inside John's head.

8. At key moments in the story, I felt I knew exactly what John was going through.

9. While reading, I wanted John to succeed in achieving his goals.

Thought Listing

In the space below, please take a minute or two to list all of the thoughts you had when you were reading the narrative. Don't worry about spelling or grammar–just write down all the thoughts you can recall. These thoughts may be positive, negative, or neutral toward the narrative. Please do not spend more than 3-4 minutes on this section.

Perceived Realism Scale

The following questions are designed to measure whether the narrative actually reflects what happens in the real world. Again, there are no right or wrong answers, just opinions. Please answer every question, even if you are not sure about or confident of your answer.

1	2	3	4	5	6	7
Not at all						Very much

1. The dialogue in the narrative is realistic and believable.

2. The setting for the narrative just doesn't seem real. (r)

3. People in this narrative are like people you or I might actually know.

4. The way people really live their everyday lives is not portrayed very accurately in this narrative. (r)

5. Events that actually have happened or could happen are discussed in this narrative.

6. This narrative shows that people have both good and bad sides.

7. I have a hard time believing the people in this narrative are real because the basic situation is so far-fetched. (r)

How responsible ***do you feel*** for John's decisions?

1	2	3	4	5	6	7
not at all responsible						completely responsible

How responsible ***do you feel*** for the outcome of the story?

1	2	3	4	5	6	7
not at all responsible						completely responsible

How much did you like or dislike the story?

-3	-2	-1	0	1	2	3
very much disliked			neither liked nor disliked			very much liked

In your opinion, how good or bad was the story?

-3	-2	-1	0	1	2	3
very bad			neither good nor bad			very good

To what extent were you actually making decisions in the story *based on what **you** would do?*

1	2	3	4	5	6	7
not at all						very much

To what extent were you actually making decisions in the *story based on what **John** would do?*

1	2	3	4	5	6	7
not at all						very much

To what extent were you making decisions in the story *based on what you thought would make the most interesting story?*

1	2	3	4	5	6	7
not at all						very much

Need for Cognition

For each of the statements below, please indicate whether or not the statement is characteristic of you or of what you believe. You should use the following scale as you rate each of the statements below.

1	2	3	4	5
extremely unlike me	somewhat unlike me	uncertain	somewhat like me	extremely like me

1. I prefer complex to simple problems.
2. I like to have the responsibility of handling a situation that requires a lot of thinking.
3. Thinking is not my idea of fun. (r)
4. I would rather do something requiring little thought than something that is sure to challenge my thinking abilities. (r)
5. I try to anticipate and avoid situations where there is likely chance I will have to think in depth about something. (r)
6. I find satisfaction in deliberating hard and for long hours.
7. I only think as hard as I have to. (r)
8. I prefer to think about small, daily projects to long-term ones. (r)
9. I like tasks that require little thought once I've learned them. (r)
10. The idea of relying on thought to make my way to the top appeals to me.
11. I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn't excite me very much. (r)
13. I prefer my life to be filled with puzzles that I must solve.
14. The notion of thinking abstractly is appealing to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort. (r)
17. It's enough for me that something gets the job done; I don't care how or why it works. (r)
18. I usually end up deliberating about issues even when they do not affect me personally.

Short Transportability Scale

We are interested in your typical reactions when you read stories. These may include novels, newspaper stories, or other kinds of narratives. Please select the number by each question that best represents your opinions and experiences with narratives and stories you have read.

1	2	3	4	5	6	7
Not at all						Very much

1. I am mentally involved in stories while reading them.

2. Stories affect me emotionally.

3. I can become so absorbed in a story that I forget the world around me.

4. Characters in stories can seem real to me.

What were the decision-making instructions given to you at the beginning of this study?

- Make decisions based on what you should or would do
- Make decisions based on what John should or would do
- Make decisions based on what would make the most interesting story
- I don't remember

To what extent do you feel you were you able to follow these instructions?

1	2	3	4	5	6	7
not at all						very much

To what extent were you interested in exploring alternative story paths while reading the story?

1	2	3	4	5	6	7
not at all						very much

To what extent do you wish you had made different decisions while reading the story?

1	2	3	4	5	6	7
not at all						very much

If you did wish that you had made different decisions, why? (choose all that apply)

- Just to see what would have happened
- Bad things happened to the character
- The story would have been more entertaining
- I experienced negative emotions while reading the story

Please explain your responses: _____

Demographic Information

It is helpful to us to know something about the kinds of people who are participating in our studies. Please complete the demographic information below. Again, all of your responses will be kept completely confidential.

Gender: Male Female

Race:
_____ White/Caucasian
_____ Black/African-American
_____ Hispanic/Latino(a)
_____ East Asian (e.g., Chinese, Japanese, Vietnamese)
_____ South Asian (e.g., Indian, Pakistani, Burmese)
_____ Pacific Islander or Native Hawaiian
_____ Other (please specify_____)

Age: _____

Political Preference:

1	2	3	4	5	6	7
Strongly liberal	Liberal	Somewhat liberal	Moderate	Somewhat conservative	Conservative	Strongly conservative

Year in school: 1 2 3 4 5+

Major or intended major: _____

Do you intend to pursue a career in the health professions (e.g., doctor, nurse, pharmacist)? [*Yes, No*]

Do you or any of your close relatives work in the field of medicine? [*Yes,* No]

If yes: Which of your relatives works in medicine? (please describe the person's relation to you, e.g., "mother," "uncle," rather than their name) What is their job?

Before the study today, how much had you thought about the issue of posting potentially unprofessional photos online?

1 2 3 4 5 6 7
not at all very much

Before the study today, how much had you thought about the issue of medical professionals accepting gifts from pharmaceutical companies?

1	2	3	4	5	6	7
not at all						very much

Did you hear anything from others about this study before you participated? [*Yes*, *No*]

If yes: What did you hear?

Do you have any comments about the study? If so, please write them in the space below.

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Tables and Figures

	Control	Traditional narrative	Interactive narrative	*F*-value	*p*-value
Pharmacy attitudes	4.89 (1.22) [4.62, 5.15]	5.12 (0.87) [4.87, 5.38]	5.17 (1.01) [4.92, 5.43]	1.34	.26
Pharmacy - temptation	3.98 (1.94) [3.54, 4.42]	3.36 (1.34) [2.97, 3.75]	4.12 (1.53) [3.73, 4.52]	4.10	.02
Pharmacy – big deal	4.44 (1.64) [4.06, 4.81]	4.78 (1.28) [4.44, 5.13]	4.85 (1.34) [4.49, 5.21]	1.42	.24
Pharmacy - likelihood	4.59 (1.61) [4.23, 4.94]	4.40 (1.34) [4.06, 4.74]	5.02 (1.16) [4.68, 5.36]	3.45	.03
Photo attitudes	6.02 (0.85) [5.82, 6.23]	6.09 (0.75) [5.90, 6.29]	6.02 (0.83) [5.82, 6.22]	0.16	.85
Photo - likelihood	5.58 (1.45) [5.20, 5.97]	5.90 (1.30) [5.56, 6.24]	5.97 (1.32) [5.62, 6.33]	1.21	.30
Photo – big deal	5.74 (1.25) [5.46, 6.02]	5.98 (1.02) [5.72, 6.25]	5.95 (1.03) [5.68, 6.23]	0.94	.39
Photo - career	5.44 (1.58) [5.04, 5.83]	6.04 (1.28) [5.69, 6.40]	5.92 (1.32) [5.55, 6.29]	2.74	.07
Transportation	---	4.41 (0.78) [4.22, 4.60]	4.53 (0.80) [4.34, 4.73]	0.79	.38
Identification	---	4.50 (0.96) [4.24, 4.76]	4.88 (1.14) [4.62, 5.14]	4.16	.04
Perceived Realism	---	5.34 (0.74) [5.17, 5.51]	5.36 (0.68) [5.19, 5.54]	0.03	.86
Story satisfaction	---	4.75 (1.10) [4.50, 5.00]	4.70 (0.99) [4.44, 4.96]	0.06	.80
Responsibility	---	1.75 (1.43) [1.29, 2.22]	4.50 (2.01) [4.06, 4.94]	72.34	< .001
Character evaluation	---	4.60 (0.83) [4.38, 4.81]	4.64 (0.91) [4.42, 4.85]	0.07	.79

Table 1. Study 1: Means (standard deviations) [95% confidence intervals] and analyses of variance for dependent variables between conditions.

	Interactive narrative
Decisions based on you	5.40 (1.63) [4.99, 5.81]
Decisions based on John	3.64 (1.76) [3.19, 4.09]
Decisions based on entertainment	3.00 (2.05) [2.46, 3.53]

Table 2. Study 1: Means (standard deviations) [95% confidence intervals] for decision-making methods in the interactive condition. Within-subjects variables.

	Control	Traditional narrative	Interactive narrative	*F*-value	*p*-value
Need for cognition	3.30 (0.65) [3.14, 3.46]	3.21 (0.68) [3.06, 3.36]	3.48 (0.53) [3.33, 3.64]	3.16	.04
Transportability	4.94 (1.31) [4.62, 5.23]	5.01 (1.26) [4.71, 5.32]	5.20 (1.20) [4.89, 5.51]	0.72	.49
Prior thought about pharmaceutical issues	2.09 (1.62) [1.62, 2.55]	2.03 (1.46) [1.64, 2.43]	2.25 (1.72) [1.84, 2.66]	0.31	.73
Prior thought about unprofessional photos	4.50 (1.95) [4.01, 4.99]	5.02 (1.89) [4.56, 5.46]	4.81 (1.72) [4.36, 5.27]	1.18	.31

Table 3. Study 1: Means (standard deviations) [95% confidence intervals] and analyses of variance for individual differences between conditions.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Pharmacy attitudes	1	---	---	---	---	---	---	---	---	---	---	---	---	---
2. Photo attitudes	.20*	1	---	---	---	---	---	---	---	---	---	---	---	---
3. Transportation	.19*	.02	1	---	---	---	---	---	---	---	---	---	---	---
4. Identification	.13	.02	.70*	1	---	---	---	---	---	---	---	---	---	---
5. Perceived Realism	.24*	.10	.41*	.40*	1	---	---	---	---	---	---	---	---	---
6. Story satisfaction	.07	.13	.52*	.45*	.49*	1	---	---	---	---	---	---	---	---
7. Responsibility	.22*	.06	.24*	.30*	.06	.10	1	---	---	---	---	---	---	---
8. Character evaluation	.12	.10	.20*	.38*	.27**	.36*	.20*	1	---	---	---	---	---	---
9. Decisions-you	.35*	.12	.23	.31*	.33*	.28*	.17	.57*	1	---	---	---	---	---
10. Decisions-John	-.02	-.02	.20	.22	-.05	.18	.06	.10	-.30*	1	---	---	---	---
11. Decisions-game	-.20	-.04	-.13	-.16	-.20	-.05	.10	-.30*	-.43*	.18	1	---	---	---
12. NFC	.04	-.17*	.24*	.23*	.17	.05	.22*	.05	-.06	.20	-.01	1	---	---
13. Transportability	.13	.11	.49*	.50*	.34	.34	.22*	.24*	.10	.04	-.11	.33*	1	---
14. Prior thought - pharm	.10	-.14	.17	.08	.26	.09	.12	-.002	.08	.03	-.14	.19*	-.03	1
15. Prior thought - photos	.15*	.09	.16	.04	.24	-.03	-.08	.02	.06	.12	-.10	.07	.06	.23*

Table 4.1. Study 1: Bivariate correlations between all measures. * $p < .05$. Table continued below.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16. Pharm – temptation	.42*	.15	-.05	-.01	.03	-.08	.11	.02	.15	.14	-.08	.09	.03	-.01	-.03	1	---	---	---	---
17. Pharm – big deal	.71*	.08	.12	.04	.14	.10	.08	.09	.30*	-.15	-.19	.06	.08	.05	.08	.54*	1	---	---	---
18. Pharm – likelihood	.70*	.16*	.15	.10	.18	.04	.31*	.14	.36*	-.11	-.24	.10	.16*	.03	.05	.64*	.71*	1	---	---
19. Photo – likelihood	.09	.42*	-.04	-.06	.00	.06	.10	-.20*	-.15	-.14	.20	.06	.08	-.14	-.06	.12	.11	.14	1	---
20. Photo – big deal	.13	.66*	-.01	-.05	-.05	.02	.15	-.04	.01	.05	.05	.01	.15*	-.16*	.06	.13	.14	.17*	.67*	1
21. Photo – career	.17*	.44*	.05	-.04	.16	.13	.06	-.01	-.02	-.002	-.12	-.06	.04	-.02	.02	.16*	.26*	.22*	.39*	.48*

Table 4.2. Table continued from above. Study 1: Bivariate correlations between all measures. * $p < .05$.

	Control	Traditional narrative	Interactive-self	Interactive-character	Interactive-game	*F*-value	*p*-value
Pharmacy attitudes	5.11 (1.08) [4.79, 5.42]	4.76 (0.96) [4.45, 5.07]	5.18 (0.86) [4.85, 5.52]	5.14 (1.13) [4.83, 5.45]	5.14 (1.05) [4.79, 5.49]	1.16	.33
Pharmacy - temptation	4.31 (1.46) [3.88, 4.74]	3.10 (1.26) [2.66, 3.53]	3.86 (1.48) [3.39, 4.33]	3.76 (1.53) [3.32, 4.19]	3.26 (1.36) [2.78, 3.74]	4.74	.001
Pharmacy – big deal	4.92 (1.36) [4.45, 5.39]	4.12 (1.48) [3.67, 4.56]	4.88 (1.34) [4.40, 5.37]	4.78 (1.46) [4.33, 5.23]	4.45 (1.66) [3.95, 4.96]	2.15	.08
Pharmacy - likelihood	5.23 (1.18) [4.86, 5.60]	4.54 (1.13) [4.17, 4.90]	5.34 (1.00) [4.93, 5.75]	5.07 (1.28) [4.63, 5.37]	5.23 (1.18) [4.66, 5.48]	2.61	.04
Photo attitudes	5.88 (0.80) [5.62, 6.14]	5.84 (0.95) [5.58, 6.10]	5.94 (0.81) [5.66, 6.23]	5.94 (0.87) [5.68, 6.21]	5.96 (0.86) [5.67, 6.25]	0.14	.97
Photo - likelihood	5.53 (1.38) [5.12, 5.93]	5.85 (1.40) [5.43, 6.27]	6.07 (0.85) [5.61, 6.53]	5.91 (1.30) [5.50, 6.32]	6.05 (1.28) [5.60, 6.49]	1.04	.39
Photo – big deal	5.10 (1.24) [4.74, 5.47]	5.77 (1.28) [5.40, 6.14]	5.56 (1.16) [5.16, 5.95]	5.66 (1.21) [5.29, 6.02]	5.74 (1.12) [5.34, 6.15]	2.10	.08
Photo - career	5.24 (1.33) [4.82, 5.67]	5.32 (1.66) [4.90, 5.74]	5.35 (1.40) [4.90, 5.80]	5.51 (1.17) [5.09, 5.93]	5. 51 (1.23) [5.05, 5.98]	0.30	.88
Transportation	---	4.44 (0.72) [4.22, 4.67]	4.59 (0.84) [4.35, 4.83]	4.53 (0.66) [4.30, 4.75]	4.37 (0.70) [4.12, 4.62]	0.60	.62
Identification	---	4.58 (1.09) [4.26, 4.90]	4.76 (1.10) [4.40, 5.10]	4.64 (1.09) [4.32, 4.96]	4.46 (0.94) [4.10, 4.82]	.48	.70
Perceived Realism	---	5.19 (0.86) [4.94, 5.44]	5.53 (0.73) [5.26, 5.80]	5.24 (0.85) [4.99, 5.49]	5.26 (0.81) [4.98, 5.54]	1.28	.28
Story satisfaction	---	4.92 (0.96) [4.61, 5.22]	5.01 (0.83) [4.68, 5.35]	4.80 (1.06) [4.49, 5.10]	4.68 (1.14) [4.34, 5.03]	0.72	.54
Responsibility	---	1.39 (0.97) [0.82, 1.96]	4.08 (1.96) [3.48, 4.67]	3.98 (1.84) [3.43, 4.52]	3.72 (1.99) [3.13, 4.31]	19.47	< .001
Character evaluation	---	4.62 (0.81) [4.36, 4.88]	4.64 (0.99) [4.36, 4.92]	4.83 (0.85) [4.57, 5.09]	4.08 (0.73) [3.79, 4.37]	5.40	.002
Decisions - you			6.46 (0.85) [5.96, 6.95]	3.02 (1.49) [2.57, 3.48]	2.75 (1.92) [2.23, 3.27]	69.18	< .001
Decisions - character			2.06 (1.04) [1.59, 2.53]	5.69 (0.95) [5.28, 6.10]	2.94 (1.90) [2.48, 3.40]	75.45	< .001
Decisions - interesting			1.63 (1.27) [1.24, 2.03]	1.92 (1.26) [1.58, 2.27]	6.68 (0.59) [6.30, 7.05]	228.10	< .001

Table 5. Study 2: Means (standard deviations) [95% confidence intervals] and analyses of variance for dependent variables between conditions.

	Control	Traditional narrative	Interactive-self	Interactive-character	Interactive-game	*F*-value	*p*-value
Need for cognition	3.34 (0.59) [3.13, 3.55]	3.41 (0.66) [3.20, 3.62]	3.49 (0.71) [3.26, 3.72]	3.39 (0.75) [3.18, 3.60]	3.32 (0.73) [3.09, 3.56]	0.32	.86
Transportability	4.85 (1.20) [4.48, 5.23]	5.30 (1.20) [4.93, 5.68]	5.22 (1.00) [4.80, 5.64]	4.67 (1.38) [4.29, 5.04]	5.24 (1.31) [4.82, 5.65]	2.08	.08
Prior thought about pharmaceutical issues	2.17 (1.58) [1.73, 2.61]	1.75 (1.10) [1.32, 2.18]	2.17 (1.37) [1.69, 2.64]	2.26 (1.27) [1.86, 2.66]	1.81 (1.22) [1.34, 2.27]	1.14	.34
Prior thought about unprofessional photos	4.54 (1.78) [4.01, 5.06]	4.80 (1.81) [4.28, 5.33]	5.18 (1.49) [4.60, 5.75]	4.81 (1.80) [4.29, 5.33]	5.15 (1.58) [4.56, 5.74]	0.92	.46
Ability to follow instructions	---	---	6.31 (0.90) [5.98, 6.65]	5.67 (1.24) [5.36, 5.97]	6.50 (0.71) [6.16, 6.84]	7.47	.001

Table 6. Study 2: Means (standard deviations) [95% confidence intervals] and analyses of variance for individual differences.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Pharmacy attitudes	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2. Photo attitudes	.25*	1	---	---	---	---	---	---	---	---	---	---	---	---	---
3. Transportation	.09	.18*	1	---	---	---	---	---	---	---	---	---	---	---	---
4. Identification	.02	.11	.66*	1	---	---	---	---	---	---	---	---	---	---	---
5. Perceived Realism	.15	.04	.45*	.52*	1	---	---	---	---	---	---	---	---	---	---
6. Story satisfaction	.02	.01	.41*	.45*	.41*	1	---	---	---	---	---	---	---	---	---
7. Responsibility	.22*	-.01	.16	.10	.09	.08	1	---	---	---	---	---	---	---	---
8. Character evaluation	-.08	-.03	.15	.36*	.09	.22*	.05	1	---	---	---	---	---	---	---
9. Decisions-you	-.08	-.17	.14	.15	.06	.17	.14	.18	1	---	---	---	---	---	
10. Decisions-John	-.01	-.02	.07	.14	-.02	.07	-.02	.19	-.35*	1	---	---	---	---	---
11. Decisions-game	-.04	-.11	-.21*	-.13	-.14	-.13	-.02	-.34*	-.41	-.22*	1	---	---	---	---
12. NFC	.10	-.06	.19*	.25*	.26*	.14	-.04	.08	-.02	-.09	-.10	1	---	---	---
13. Transportability	.10	.05	.51*	.36*	.37*	.24*	.02	.01	-.004	-.08	.13	.31*	1	---	---
14. Prior thought - pharm	-.002	-.18	-.04	-.03	.06	.04	.11	.06	.02	.02	-.07	.30*	.01	1	
15. Prior thought - photos	.06	.21*	.08	-.03	.16	.04	-.01	-.08	-.06	-.16	.001	.12	.19*	.10	1
16. Instructions	.09	.13	.20*	.27*	.39*	.16	-.11	-.17	-.03	-.19*	.13	.12	.20*	-.19	.05

Table 7.1 Study 2: Bivariate correlations between all variables across all conditions. * $p < .05$.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
17. Pharm – temptation	.37*	.05	.07	.05	.15	.01	.17*	-.01	.06	-.05	-.12	.10	.01	.06	-.02	.07	1	---	---	---	---
18. Pharm – big deal	.77*	.20*	.07	-.06	.12	.08	.17*	-.03	-.02	-.01	-.15	.05	.08	.08	.04	.04	.46*	1	---	---	---
19. Pharm – likelihood	.69*	.19*	.11	.03	.22*	.12	.18*	.02	-.05	-.15	-.04	.20*	.10	.07	.05	.19	.59*	.74*	1	---	---
20. Photo – likelihood	.27*	.60*	.04	.06	.10	.04	.14	-.10	-.12	-.07	-.04	-.01	.08	-.12	.12	.05	.11	.18*	.20*	1	---
21. Photo – big deal	.28*	.68*	.10	.06	.10	.01	-.005	-.12	-.20*	.02	-.04	-.04	.08	-.16*	.22*	.05	.08	.20*	.15*	.80*	1
22. Photo – career	.20*	.49*	.03	-.02	.03	-.07	-.07	-.06	-.18	.01	-.04	-.06	-.04	-.14	.26*	.02	-.02	.12	.08	.36*	.55*

Table 7.2. Table continued from above. Study 2: Bivariate correlations between all variables across all conditions. * $p < .05$.

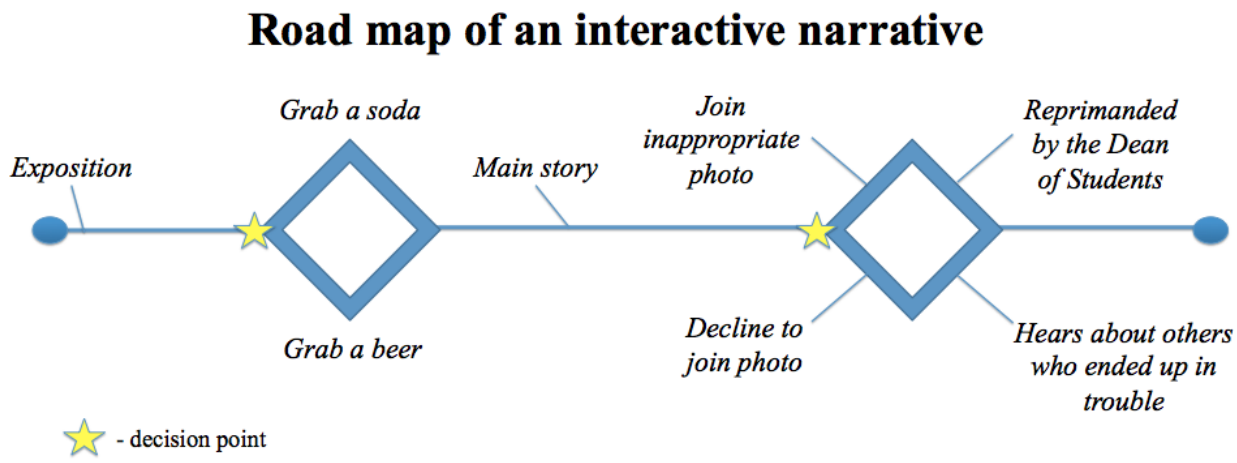

Figure 1. Roadmap of an interactive narrative, using decisions from *The Brewsters*.

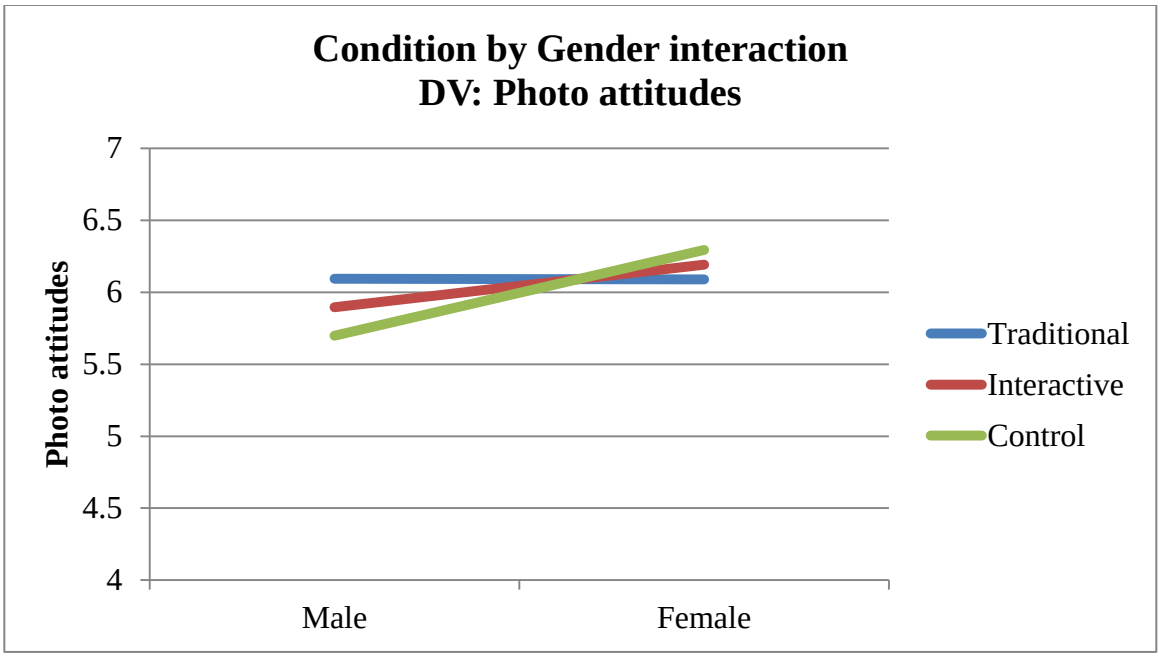

Figure 2. Study 1: Effect of narrative condition on attitudes toward unprofessional photos, moderated by gender. Females in both the interactive and control condition showed more story-consistent attitudes (i.e., higher scores, more negative attitude toward unprofessional photos) than males. This interaction is significant; b = -0.30, SE = 0.14, p = .04.

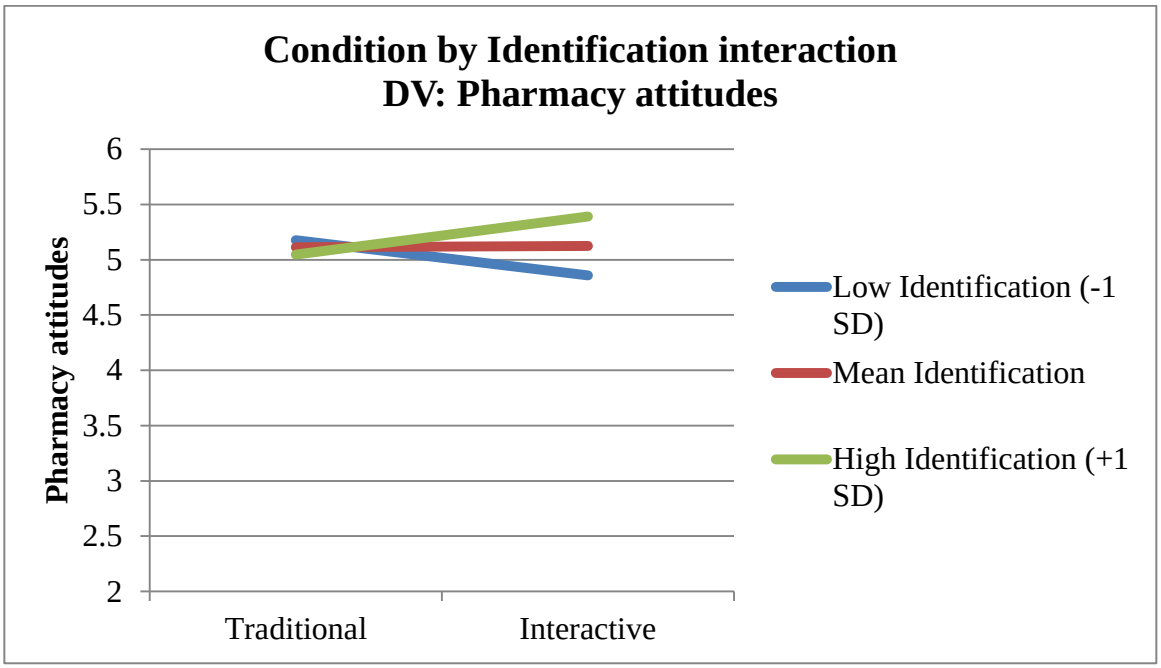

Figure 3. Study 1: Effect of narrative condition on pharmacy attitudes, moderated by identification. Those who reported higher levels of identification reported more story-consistent attitudes in the interactive narrative condition. This interaction is significant; $b = 0.31$, SE = 0.16, $p = .05$.

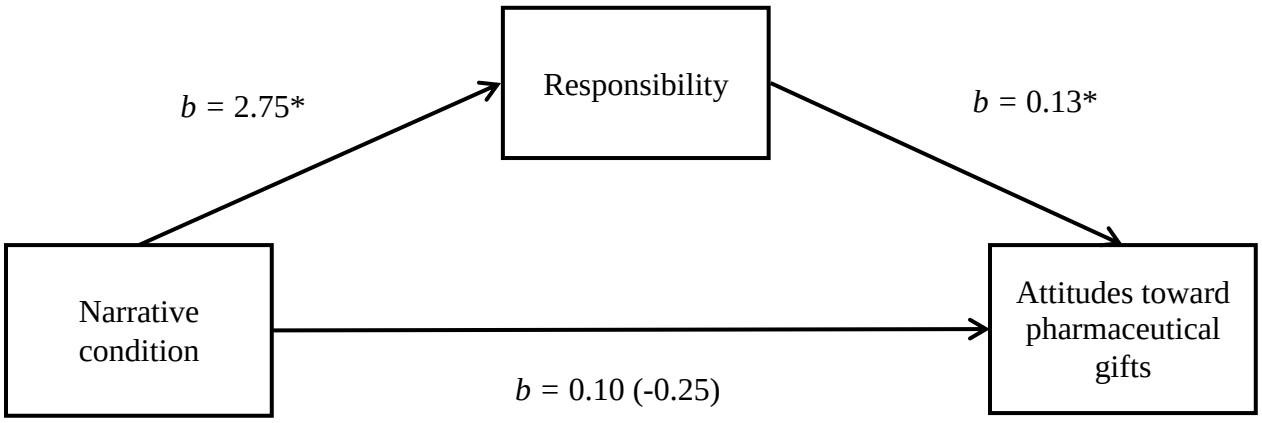

Figure 4. Study 1: Indirect effect path diagram. Bootstrapping results (n=5,000) revealed a significant indirect effect of narrative condition on attitudes toward pharmaceutical gifts through responsibility [b = 0.35, 95% CI (0.10, 0.66)]. Those in the interactive condition reported higher levels of responsibility; those who reported higher levels of responsibility reported more story-consistent pharmacy attitudes. *p < .05.

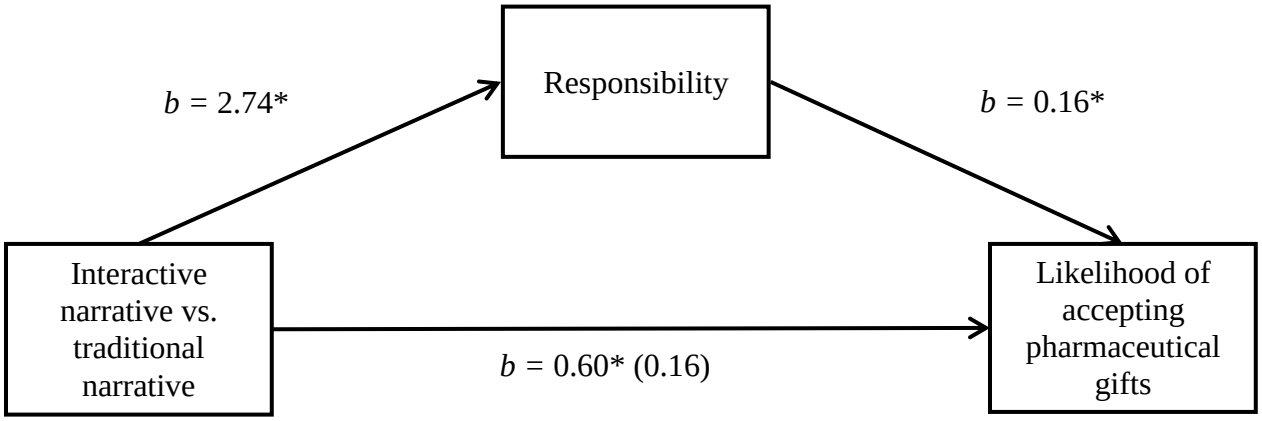

Figure 5. Study 1: Indirect effect path diagram. Bootstrapping results (n=5,000) revealed that participants in the interactive narrative condition were less likely to accepts pharmaceutical gifts, and that this effect was fully mediated by higher levels of responsibility. [95% CI (0.12, 0.86)]. *p < .05.

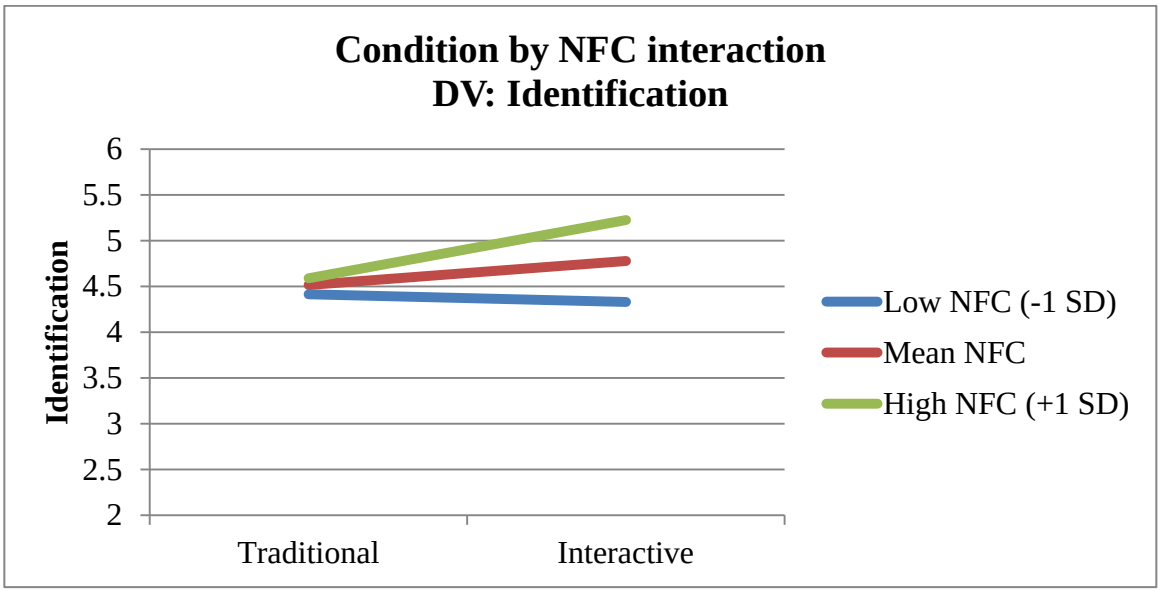

Figure 6. Study 1: Effect of narrative condition on identification, moderated by need for cognition. This interaction is significant: $b = 0.60$, SE = 0.30, $p = .05$. Participants high in need for cognition reported higher levels of identification in the interactive condition; this simple slope was statistically significant, $t = 2.47$, $p = .01$.

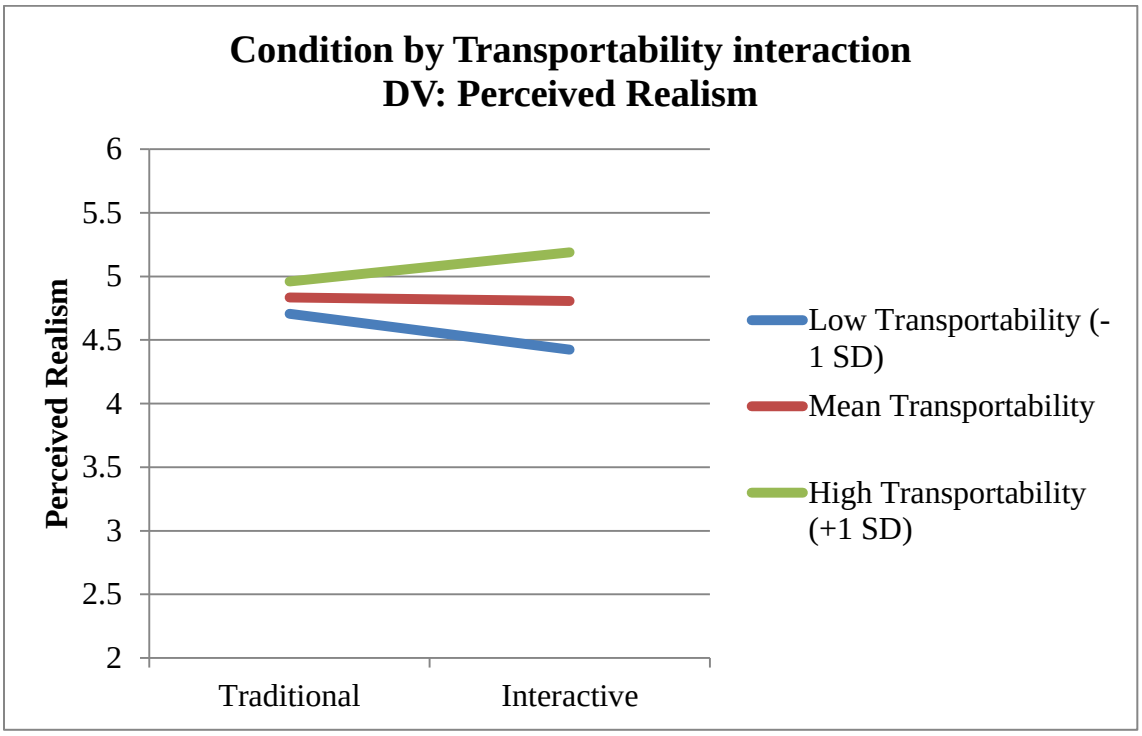

Figure 7. Study 1: Effect of narrative condition on perceived realism, moderated by transportability. Participants high in transportability reported higher levels of perceived realism in the interactive condition. This interaction is significant: b = 0.20, SE = 0.09, p = .03.

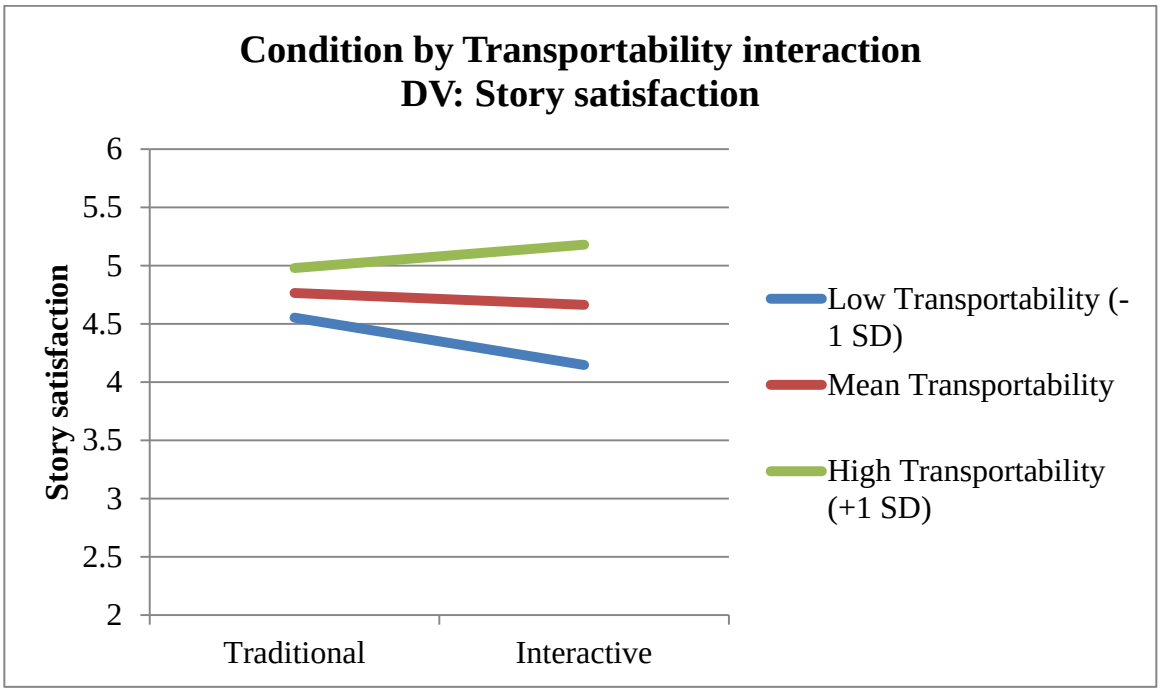

Figure 8. Study 1: Effect of narrative condition on story satisfaction, moderated by transportability. Participants high in transportability reported higher levels of story satisfaction in the interactive condition. This interaction is marginally significant: $b = 0.25$, SE = 0.14, $p = .08$.

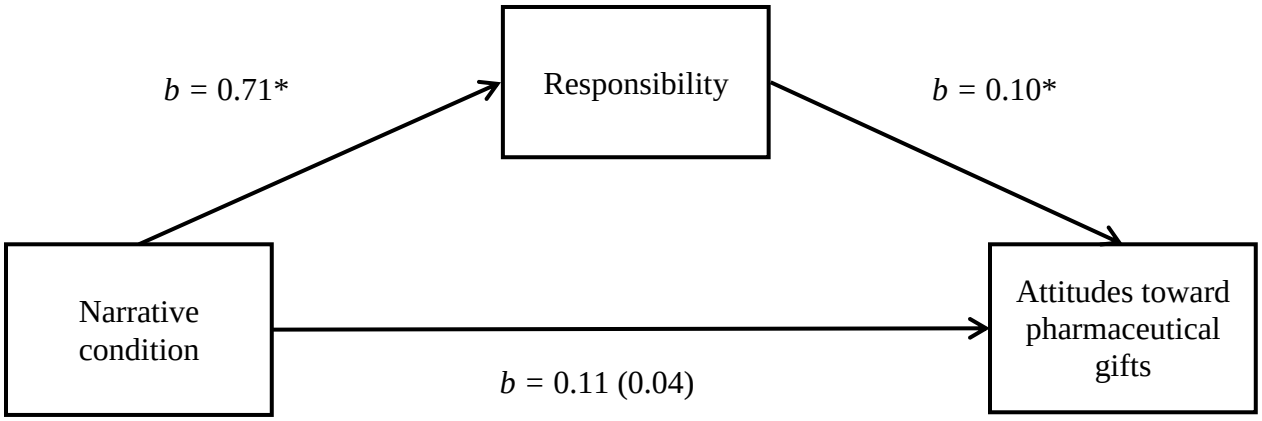

Figure 9. Study 2: Indirect effect path diagram. Bootstrapping results (n=5,000) revealed a significant indirect effect of narrative condition on attitudes toward pharmaceutical gifts through responsibility [b = 0.07, 95% CI (0.01, 0.15)]. Those in the interactive conditions reported higher levels of responsibility; those who reported higher levels of responsibility reported more story-consistent pharmacy attitudes. *p < .05.

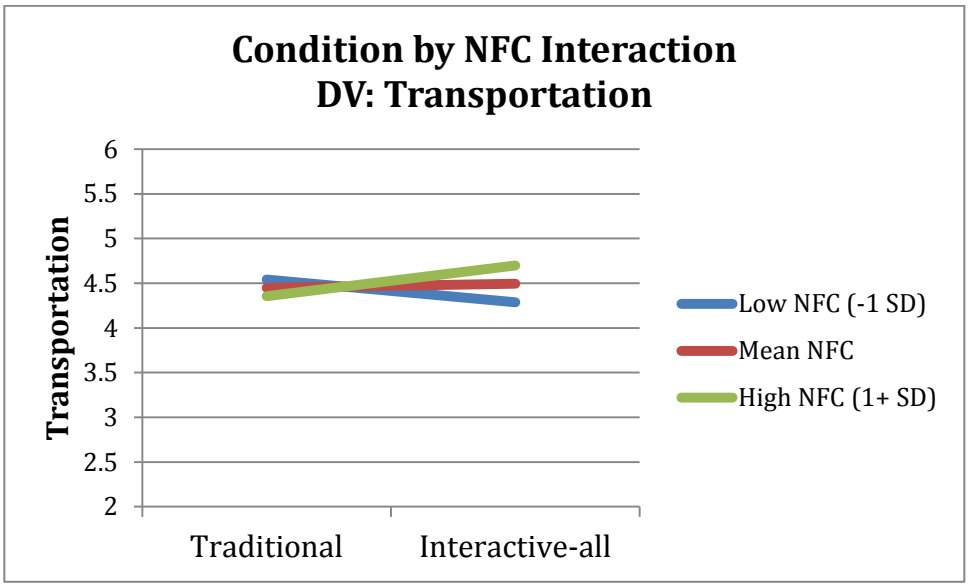

Figure 10. Study 2: Interaction between narrative condition (traditional vs. collapsed interactive conditions) and need for cognition on transportation at low (-1 SD), mean, and high (+1 SD) levels of the moderator. This interaction is significant: $b = 0.42$, SE = 0.19, $p = .03$.

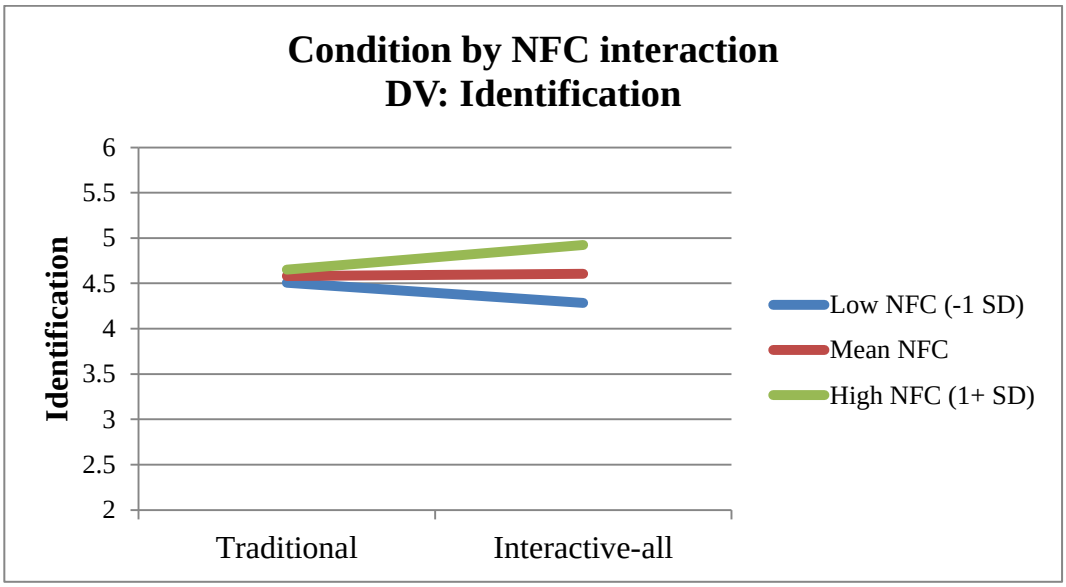

Figure 11. Study 2: Interaction between narrative condition (traditional vs. collapsed interactive conditions) and need for cognition on identification at low (-1 SD), mean, and high (+1 SD) levels of the moderator.

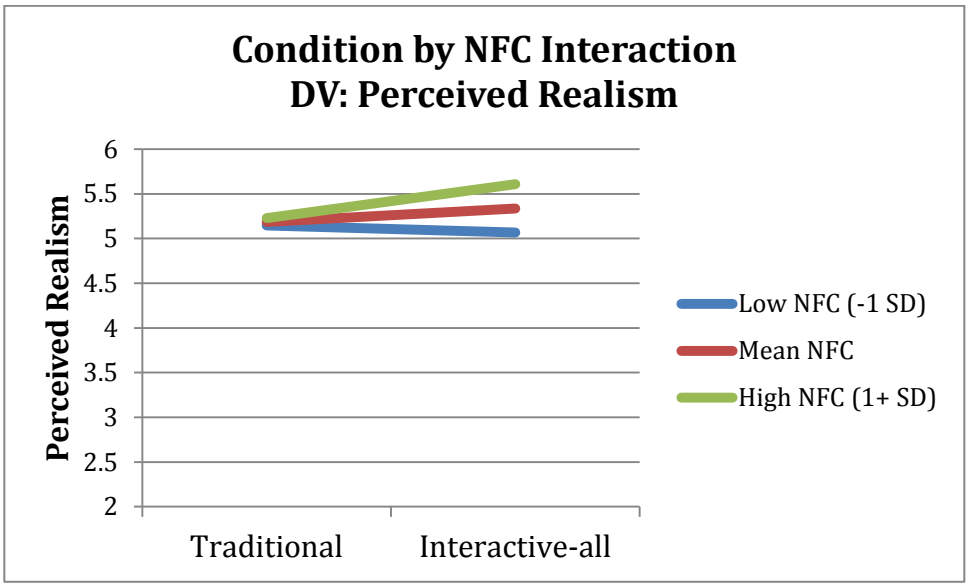

Figure 12. Study 2: Interaction between condition and need for cognition on perceived realism at low (-1 SD), mean, and high (+1 SD) levels of the moderator.